

No. 77 THE MAGAZINE OF TOMORROW

# **AUTHENTIC** **SCIENCE FICTION**



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Editor:  
E. C. TUBB

Art Editor:  
E. L. BLANDFORD

Cover by:  
E. L. BLANDFORD

Illustrated by:  
E. L. BLANDFORD

# AUTHENTIC SCIENCE FICTION MONTHLY

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# *Editorial*

ATTENTION ALL READERS! THIS IS AN ANNOUNCEMENT AND a warning. Do not expect to see the old, familiar magazine on the bookstalls next month—you won't be able to find it. No, we aren't stopping publication, far from it, but you won't be able to find the old magazine simply because it won't be there. In its place you will find a bigger, brighter, better, "new" *Authentic* which I confidently guarantee will please each and every one of you. And the warning? It will please others, too, so don't wait too long before asking for your copy. You may be disappointed.

It is always pleasant to be the bearer of good news, and there are few things I can think of more pleasant than the changes due in the next issue. The size will be larger; the digest size so popular at the present time, small enough to slip into a pocket and yet large enough to permit of a good interior layout. There will be more interior illustrations by artists you haven't yet seen and the cover is truly superb. And the cover, as so many of you have always wanted, will illustrate a scene from one of the stories.

In short, *Authentic* is going to have a complete revision and the change will incorporate all the feasible suggestions for improvement which you, the readers, have sent in. So, you see, the "new" magazine is directly a result of your active interest. But three things about the magazine will not change.

The price will remain as before.

The close-knit affinity between readers, writers and the man-in-between, the Editor, will remain. And it is a close-

knit affinity. It is useless writers sending me stories which I know the readers will not like. It is useless me publishing stories the readers do not want. It is a waste of time for writers to insist on submitting the type of story they demand the reader should enjoy. Only by a constant flow of communication, the exchange of ideas and the registering of likes and dislikes can we work in harmony.

So the constant effort to provide the very best in science fiction entertainment must, as always, remain the first essential.

In this regard I'd like to say a word about *Discussions*. As most of you know, the readers' department is just that; all I do is to pick out the best letters, try to prevent duplication, and answer, or have answered, any science questions anyone chooses to send in. Many of the letters received require a personal answer, many others are of limited interest, the majority are of more interest to me, as an editor, than to other readers. Repetition of suggestions, etc., while essential in a magazine such as ours in order to build up the affinity I spoke of, are of little general interest.

So there will be no *Discussions* in the next issue.

Instead, I will use the pages for extra fiction. If you miss the department and want it back, then the decision can always be reversed, but that is solely up to you. Naturally, even though there will be no *Discussions*, I will appreciate your letters, so don't stop writing in under the mistaken impression that your letters aren't appreciated. They are.

Well, that's the great news for this month. The next time we meet the surrounding will be a little different, but the old, friendly atmosphere will be the same. But don't miss the next issue whatever you do.

And don't let your friends miss it, either—not if you want them to stay your friends.

E.C.T.



# The Recusants

by JONATHAN BURKE

*PEREGRINE WAS A REBEL AGAINST A SOCIETY  
WHICH HAD DAMNED HIM TO BE AN OUTCAST  
AND YET WAS SOCIETY WHOLLY TO BLAME?*

**O**F COURSE I UNDERSTAND HOW HENNING AND MYRNA came to spurn the regime of the Newmen. Who should have a better knowledge than I of the workings of their minds?

Henning was the son of a couple who had married quite young, which probably accounts for the failure of the Newmen conditioning to "take" as securely as it ought to have done. He inherited too many memories and too much youthful intransigence from his father—a reactionary who had never thoroughly assimilated the teachings of the pioneer Newmen. Henning's father did not propose to submit to his children: he would not accept wisdom from them; and the stubborn hostility he thus implanted in his son's mind was bound to set up a conflict there.

No doubt the problem lay dormant during the early years. But when Henning married Myrna, they had to face up to it.

Myrna said: "When we have children . . ."

She was small and dark, with a smooth olive skin and deep, wistful eyes. He was taller, and had a slight stoop—he gave the appearance of always bending protectively over her.

"When we have children, what shall we do? We must decide."

The two of them were sitting in their three-roomed apartment overlooking the Thames. Henning had just

pulsed a helicar, and they had two minutes to wait before they were taken out to dinner with friends. The thought of those friends was preying on them—they knew what to expect.

"The pattern for us," said Henning, with distaste, "will be the same as the pattern for Paul and Lucille Marsh. Or for anyone else."

"We've got to decide," said Myrna. "There must be a way. We must be able to choose."

"As long as we live here, under the radiation blanket, we shall produce a child who will be our ruler."

Myrna got up and went to the door leading to the next room. In there, according to the architect's design and also according to law, was to be a nursery. She looked at the bare walls on which their first child would tell them what pictures to hang; at the bare shelves, for which he or she would order chosen microtapes; at the built-in cot with its adjacent control knobs for remote operation of the tele-screen and microtape amplifier.

And she said: "You do want us to get out, don't you, Henning? Truly?"

"Yes," he said. "Before it's too late. Before you have a child."

Her small red lips were pursed. Her strangely defenceless little face was pale and wry with wonderment.

"It's odd that we should have met and married—two people as difficult as we are. The chances against our meeting . . ."

"If I hadn't met you," he said with a warmth that brought the colour gratefully back to her cheeks, "I should never have married at all. It's only because——"

The helicar buzzed its signal from the roof, and they went up ten storeys to the exit.

The trip was a short one. The car lifted them above London and turned north towards the residential blocks

of St. Albans. Traffic was brisk at this time of the evening, but it was only a matter of moments before they swung off Skyway Beam A5 and dropped to the gleaming white estate below.

Paul and Lucille Marsh were waiting for them on the roof.

"So nice you could come," said Lucille.

They shook hands and smiled bright, conventional smiles.

Myrna said: "What a lovely evening, isn't it?"

"Is it?"

The Marshes, taken by surprise, stared up into the sky. The retreating helicar was, for a moment, an iridescent blob of silver against a rolling wave of cumulus, tinged with fading crimson. Paul Marsh looked puzzled. Myrna realized that she had embarrassed him—the Marshes were responsible, middle-aged citizens who did not make a point of gazing into the evanescent phenomena of the skies.

Paul said: "Well, let's go in, shall we?"

The apartment was slightly larger than the one in which Henning and Myrna lived; but its essential features were the same. People today, after all, wanted more or less the same things. More spacious accommodation was a sign of a mounting age group and increased responsibility, but there was no reason for any eccentric variation in the main equipment.

There was, however, one big difference here. The nursery was occupied.

"Rowena," said Lucille proudly, "is going to order the dinner."

Henning glanced surreptitiously at Myrna. They were both taut, trying to look polite and respectful—and finding it hard going.

Their hosts seemed unaware of the tension. There was pride in Paul's face as his wife went into the nursery; pride that glowed even more strongly when she returned, leading by the hand a two-year-old girl. Only it wasn't quite that,



thought Henning with a shiver of distaste (I can feel that shiver of distaste now)—the child, not the mother, was the one in control—the child was, incongruously, the senior.

"Hello, Rowena," said her father, his greying head turned towards her as though waiting for her slightest command.

Her wide eyes turned a cool, appraising stare up to him, and then glanced at the visitors. Her shrewd gaze focused on Henning.

She said: "Good evening. I understand from Paul that you work in his office."

"That's right," said Henning stiffly.

"We must have a talk one day. I've thought of several ways of re-organizing the electronic computer bankings."

"She doesn't waste any time, does she?" said Paul with a deferential smile.

Rowena's brief glance in his direction was a mingling of tolerance and contempt. She sensed, as one could hardly fail to do, the confusion in his mind—the instinctive parental affection jarring with the awed realisation that the child represented a more advanced stage of human development and would soon be in legal charge of the household. Yes, Rowena understood; but there was no more than a formal pity in her understanding. She was already too far advanced to be capable of emotional states such as that of sympathy.

She withdrew her hand from her mother's, and moved towards the kitchen dial panel. Her small, stubby fingers began to prod and punch decisively.

The food was splendid. There were combinations and piquant clashes of flavours such as Henning had never before imagined.

And it was a relief to find that there were only four of them at table.

Nevertheless, Myrna felt compelled to say: "What a pity Rowena couldn't stay up to enjoy the dinner she's ordered."

Lucille smiled. "The fact that she is mentally so advanced doesn't mean that she is physically capable of our sort of living yet," she said. "She has a flair for taste patterns, but her stomach needs to be older before it's allowed to deal with such things at this time of day. Rowena herself would be the first to insist on our adhering to the regulations."

"It seems so odd."

"Odd?"

"This . . . well, this business of being dominated by a child who can only just toddle—who has to go to bed early, whose stomach isn't ready yet for large meals in the evening . . ." Myrna's voice tailed away as she realised how shocked Lucille looked.

Paul laughed bluffly. "It'll all sort itself out when you have a child of your own. Not that that'll happen for some years yet, eh?" he added.

"Why not?" Myrna blurted out. "Henning and I would like to have children soon—while we're still young."

Paul tried to preserve his bluff manner, but it was shot through with uneasiness. He lowered his voice, as though fearful that Rowena might be listening at the bedroom door.

"That's not advisable, you know," he murmured. "Not advisable at all."

His wife nodded confirmation. She licked her lips, nodded again, and said: "You don't give the baby a chance. You and Henning need to mature before transmitting your knowledge to your child." The words came out swiftly and mechanically, like a well-learned lesson. "The longer you wait, the finer the inheritance for your child."

"Yes, but . . ."

Myrna caught Henning's eye, and stopped.

For the rest of the evening, conversation was general. Henning warily avoided provocative topics. Paul Marsh was his boss—you didn't argue with your boss, or let your wife argue with your boss.

Particularly about the principles of the Newmen.

Now that he had met Rowena, Henning found that there were questions in his mind. Questions he could not ask. He could not ask Paul Marsh how soon it would be before control of the research wing passed into the hands of that small girl sleeping in that next room. He could not ask whether, when Paul had to take a back seat, there would be other changes, new instructions.

So they talked about the new pulsator which had simplified radio contact with Mars, and about the new furnishing fabrics from Venus, and about the daily office and laboratory routine from which one might have thought they would have been glad to escape. It was all safe and unprovocative.

Even so, Lucille could not help bringing Rowena's name in at intervals. Her mind went back to her over and over again. The household revolved around the child. And even when Paul did not mention her by name, the thought of her was clearly there.

Rowena, it leaked out, had conceived a wonderful idea for a much larger telescreen projection without having to buy the commercial equipment. So simple, yet so brilliant. Rowena had taken a vague promotion scheme of her father's, and developed an entirely new angle on it. Rowena had combined her mother's and father's ideas on redecoration of the flat, and come up with a splendid new scheme.

Rowena . . .

Lucille hummed as she lifted the table flap and pressed it against the wall for the plates to be discharged into the disposal chute. And she turned and said:

"That tune . . . Rowena remembered it for me. Did I tell you, Paul?"

"No," said Paul.

"She must have taken it over from me, along with everything else. I'd forgotten all about it—such a pretty tune, I used to love it—and suddenly she started singing it

this morning. To be able to pull that up out of my memory—only of course it's *her* memory now—isn't it wonderful?"

Yes, wonderful.

I know that even Henning and Myrna, in revolt as they were against the whole regime of the Newmen, nevertheless thought it was wonderful.

And loathsome.

They were early Newmen themselves, but they had been produced by parents who resented the existence of the radiation blanket. They had not been allowed to dominate their homes; their fathers had angrily condemned those early experiments and their gradual introduction into the life of the country and then of the world.

The original experiments had been greeted by many other people with hostility—but by a great many more with incredulity. There had been shouts of derision. Video comedians in every country built a succession of jokes round the idea. New reporters went looking for new variations on the story, new gimmicks, new details of freaks and freakish happenings.

KIDS TO RULE THE ROOST, boomed the headlines. ORDERS FROM THE CRADLE . . . JUNIOR FOR PRESIDENT . . . NO SECRETS FROM BABY . . .

Jokes about mothers-in-law were swiftly converted into extravagant and improbable jokes about daughters-in-law—aged two and under.

But scorn was no weapon against reality. The Newmen had arrived.

The experiments continued, the children were born, and gradually those parents who had refused treatment began to realise that their own nice, ordinary children were going to be left behind in life's struggle. A baby who inherited his mother's and father's combined memories—with all the technical and practical knowledge and skills of

both parents, plus a clear picture of their emotional relationships and problems—stood a better chance of getting on in the world than did an ordinary child whose education was spread over the first twenty years of life. Formal schooling could not give a quarter of what was given to Newmen babies at the moment of birth, and before.

As more generations came along, the variation would be more and more marked. Grandchildren and great-grandchildren would be born with even more comprehensive knowledge. Their intellects would be the sum of all those preceding intellects which had blended into their own.

The protests began to change their tune. Those who had howled most loudly against this impious tampering with nature began to howl with equal force for similar treatment for themselves. They didn't intend to see their children overhauled and left behind by the children of others. Democracy demanded an inheritance of brilliance for all, not for a chosen few, whose brainpower would soon put them in a position to rule the world and outwit any opponents.

"But this is a complex process," the technicians protested. "Individual results can be guaranteed. The difficulties in mass application . . ."

They might as well have advocated the view that automobiles should all be hand-made, for the benefit of a select few.

"Find a way," said the governments of the world, harassed by their peoples.

The scientists reconsidered their original findings, and took steps to find a way.

The fact that it was possible to transmit the entire contents of a human mind into the embryo mind of a child not yet born had been discovered during investigations into the reactions of dogs to atomic motors. It had been noticed very early in the days of atomic-powered vehicles, that dogs were seriously disturbed by them. Radiations not perceptible

to humans—and, apparently, in no way harmful—were emitted by the new motors, and these had the same effect on certain animals as a painful supersonic vibration might have. Research was instituted at once; and after a series of tests on various theories, it was found that a development of these same radiations could produce remarkable effects in human children.

An intermittent pulse injected into the brain awoke certain activities in the cortex which had been unknown before. Hitherto unused areas of the brain awoke and set to work—secretly, almost surreptitiously, it seemed to the pioneer research workers. It was only when the first Newmen children were born that the full significance of this mental activity became apparent.

An old dream of philosophers came true. Language, knowledge, experience . . . all were transmissible. Even personal memories could be handed on intact, in their full vividness. No longer need every child go through the laborious business of starting its education with the simple banalities, the essential but primitive groundwork—no longer was there the wearisome shaping of disjointed sounds into speech; no longer the groping for comprehension of words, concepts, diagrams, numerals. The child began where its parents left off. The child of a philosopher or scientist took up the threads of the father's work and went on without flagging.

Human progress would be incalculably speeded up. The portents were all there. Given a few generations, mankind would increase its stature a hundredfold—a thousandfold.

The new process was speedily evolved. At other times, in other circumstances, its development might have taken considerably longer. But now there was the advice of the children to be acted on—the shrewd, mature, analytical children in the vanguard of the Newmen. They could tackle a problem of this sort with greater competence than their

parents at a similar age could have tackled the building of a column of wooden blocks.

Blanket radiation was the swiftly-devised solution. A layer of force was generated over every major city and town. Beneath it, basking in it as in the radiance of an invisible sun which gave off no heat, men and women lived their normal lives. They worked, played, married . . . and brought into the world babies who knew their innermost thoughts and combined their talents.

The old order changed.

Physical limitations were all that held these new beings in check. For the formative years—and now “formative” referred only to the development of physique—they had to depend on their parents to carry out their wishes. Adult in mind at birth, and adult in speech within the first twelve months of life, the children gave the orders. The whole balance of society shifted. Parental responsibility, so much talked about at every period of human evolution, changed its character—instead of being the responsibility of grown people towards their immature, defenceless children, it became the responsibility of inferiors towards their betters. Laws were soon put into effect, framed by two-year-olds, whereby property was automatically transferred from parents to their first-born child, with a complicated but efficient scale of adjustments if other children were born later.

In point of fact, very few parents had more than one child. The decline in the birth rate was even more noticeable in the second and third generations. The first-born child, particularly when this was a son, tended to make such intensive use of its parents and to overawe them so swiftly, that they were unable to contemplate the presence of another child in the household. Then again, the fast-developing minds of the Newmen soon grappled with world problems—with famine, disease, and overcrowding—

and saw that the logical step was to reduce the population of Earth as soon as possible. Large families were anti-social. With world peace in sight, the old need for large families as cannon fodder was no longer a valid argument.

But still the world was not entirely populated with Newmen. There were still others.

Outside the cities there were still, in places, children who were no more than children. And there were reactionaries who went to join the exiles.

Myrna said: "That settles it."

"I think it does," agreed Henning.

They were being carried away from the Marsh home in a helicar, drifting smoothly over the gleaming lights of the widespread city. It was a tranquil night; a radiant, glorious night—for those with eyes to see.

"I couldn't face it," said Myrna. "I couldn't bear to see contempt in the eyes of any child of mine. I want to be a mother, not a slave."

"They'll say we're selfish," said Henning. "That's what they say about anyone who breaks away from the pattern. They'll say we can't sink our selfish pride and realize that it is all for the good of the race."

"Let them say. But they won't stop us?"

"There's no law to prevent our leaving the community. It's just that we're . . . well . . ."

"Social outcasts?" she smiled.

"Sort of."

They dipped gently towards their roof. The glowing city rose up about them. A million sparkling eyes swam over and around them.

Myrna said: "I can't say I'm very worried."

"If you're sure——"

"I'm sure. Quite sure. You know we wouldn't be happy here."



They went down to their flat. The door opened before Henning's fingers, a gentle light came on automatically. He put his hand on Myrna's arm. They looked towards the nursery door, which she had left open. The bareness of the room seemed to draw them towards it—the suction of a vacuum.

Myrna stared in once more, and shivered.

"Not here," she said. "Oh, not here."

"We'll join one of the rural communities," said Henning. "We'll go at once. I'll hand in my notice, and we'll square up and go."

"And when we're there, we can start a family."

"That's it. Once we're out from under this cursed radiation blanket, we can start. We can live on the old pattern. We can live in the older traditions, as men and women were meant to live."

They kissed. It was as though they had taken a vow, and felt purified.

Myrna said: "It'll be like escaping from a plague spot into clean air."

Which showed how little they knew. Henning was a scientist of sorts, but specialisation had numbed some of his faculties. Certain concepts just did not cross his mind. He did not trouble to ask himself certain questions, let alone to seek the answers which could so readily have been given to him by any competent authority. It did not occur to him, even for a moment, that they might already be too late.

They escaped. They ducked out from under the radiation blanket and went to live with the Southerden Community.

And they were happy, and Myrna conceived and produced a son.

That is how I come to know so much of the workings of their minds. For I am their son, whom they called Peregrine and christened in the old harbour church in the old tradition . . . and I entered this world with the inheritance of my parents' knowledge and memories.

At first they did not realize. Physically, I was helpless, and to them I was merely a baby—tiny, wet, hungry, demanding.

And adorable.

Later, perhaps, they would realize the irony of it. But I doubted it. I doubted whether they could ever appreciate my feelings as I lay there. Of course they were both primitive Newmen themselves, but their memories of infancy were oddly blurred. I tried, lying there in my cradle, to sort out the memories of Henning and Myrna on this topic; but I found that there was some psychological block that would not allow them to think back that far. They denied the concept of the Newmen with both consciousness and subconsciousness.

For a few months, then, I was like any other baby. However far I might reach with my thoughts, however impatient I might be to speak and move, I could not control the appropriate mechanisms yet. When I was hungry, I had to cry like any other infant—it was the only way of attracting attention.

It was humiliating. But I could tell that it would not last for long.

Yes, I could tell. Lying in my pram outside the cottage, I would quietly practise words. It was only a matter of application. Once I had mastered the movements of mouth and lips, even the inadequacy of the childish voice was no real deterrent.

There was one man who suspected, right from the start. This was old Clayton, the self-appointed senior member of the Community.

I remember him leaning over the pram one morning and staring down at me with his disconcerting, pale grey eyes. There was something ruthless about him—something crude and domineering. I was frightened. There was nothing I could do to defend myself if . . .

Then Myrna was there, saying: "Isn't he coming on well?"

Clayton nodded slowly and sceptically.

"Looks very intelligent," he said in his rasping, unmodulated voice. "Too intelligent, if you ask me. Too intelligent by half."

Myrna laughed. Clayton went on staring at me for a moment, then turned away.

He came again. He seemed to make a point of coming to peer at me. I was sure he was waiting for me to give myself away. And I was afraid I might do so. It would be so easy; and once done, so irrevocable.

Myrna said to Henning: "That Clayton man is getting a bit queer in the head. I don't like the way he leans over Peregrine."

"He can't do any harm."

"I'm not so sure," said Myrna.

Neither was I. Clearly the time was approaching when I would have to declare myself, and Myrna and Henning, at any rate, would have to know what I was. A life of deceit was utterly impossible. To remain pent up in a child's body without being allowed the full play of the mind would be intolerable. Already I was fretting, wanting to shake off the bonds and put ideas into practice—ideas which would startle my parents and the rest of the Community, but which could not be left lying dormant.

One sunny afternoon I was put out in the pram as usual. Myrna was uprooting one or two weeds near the gate, and in the distance I could, by twisting my head and thrusting up slightly over the edge of the pram, see old Clayton on the corner of the village street. Beyond him, the masts of two of our fishing boats jutted up from under the harbour wall. He was gossiping as usual. Soon he would turn and come this way, and have a look at me. And this time he might see,

and act—crudely and impulsively, as I was sure he would act in all the circumstances.

I said: "Myrna, don't go in without me."

She straightened up and looked round, startled.

"Who's that?"

I said: "Take me indoors, Myrna."

Colour fled from her face. She gave a shaky little laugh and shook her head feebly. "Oh, no," she said. "No. Oh, please, no."

"Quickly," I said. "Before Clayton comes."

She pulled the pram towards the house, and carried me indoors. She was trembling so much that I was afraid she would drop me.

When we were inside, she put me down on the couch and stared at me as though I were a monster who had crept in from the sea—a hideous changeling.

She said: "You spoke. Out there. You . . . you spoke."

She wanted me to be silent. I could see that she longed to be reassured, somehow. A moment's aberration, that must be all it was. It couldn't really have happened. I had not said a word. She must have imagined it.

But there was no escape for her.

"Yes," I said. "I spoke."

Her knees gave way. She slumped into a chair.

"What shall we do?" she murmured.

"When Henning comes home," I said, "we'll discuss it."

It was an absurd relief to her. She was glad to postpone discussion. Knowing her as I did—knowing her through and through, as I knew her husband, my father—in every fibre of my being, I sensed her fatal cowardice. It was odd that she could be so forceful in some ways and so weak in others. Stubbornly, she had hated the world of the Newmen—bravely, she had faced the discomforts of exile in the Southerden Community; and yet now she wanted only to dodge the issue—to shut her ears and refuse to listen.

Of course, it must have been a shock. To have turned her back on the Newmen, to have hated so violently the idea of a child who would be master of the home, and then to find that the revolt had come too late . . .

Yes, I was sorry for her.

And for Henning.

His drawn face, wrinkled with salt and the sun, peered down into mine when he got home. He brought the smell of the sea into the room; and he brought the smell of fear.

I said: "There's nothing to worry about. I'm not an enemy. You must realize that. I belong here, not with those creatures in the cities."

"I don't understand," he muttered. "We left before we . . . before . . ."

"The radiations must have done their work on your genes before you left the city," I patiently explained, as though to a fumbling child. "It was an obvious possibility. It was one which you could have checked if you'd given it a moment's thought."

I tried not to sound too scornful. They ought to have known; but they were obstinate and impetuous, and they had not wanted to face up to any disagreeable possibilities. Myrna took Henning by the arm. "We've got to keep this quiet."

"This is something you'll never keep quiet," he said.

"If anyone else finds out, we'll be turned away. The Community won't allow this. We don't know what they might do."

I said: "It can't be hushed up indefinitely. For one thing, I'm not prepared to lie low and go through a wearisome pretence of being 'educated' in the slow way that things are done here." I had a pretty good mental picture of what the primitive school here must be like. "But we can probably manage to conceal things for a couple of years while I work out my plans."

A shadow flitted across Myrna's face. "Plans?"

"There are things to be done," I said.

They both studied me with an apprehensiveness that would have been comic if it had not been so pitiful. They saw me as one of the threats from which they had fled. Already, it seemed, I was preparing to run their lives for them.

Henning put it into words. He had difficulty. There had not been time for him to adjust—his rather sentimental affection for me as a baby could not be immediately cancelled out and replaced by this new mistrust. He fumbled, and at last managed to say:

"You're . . . one of the Newmen."

"No more than you two are," I reasonably pointed out. "And I'm on your side."

It was a simple statement, but even so, they could not grasp it. It was no use trying to explain there and then. They were in no state to comprehend. I grew tired of them staring at me so blankly and hopelessly, and in a fit of irritation I told them to go away and let me rest.

They went. Slowly they backed out of the room, still watching me in horrified fascination. They might almost have been expecting me to get up and pursue them.

I wriggled my still unresponsive body into a more comfortable position, and then practised movements for twenty minutes. By the end of that time I could control my arms and fingers, but I knew that I was not ready for walking or anything too ambitious in the way of physical effort.

It was time for a sleep. So I slept.

Henning and Myrna did not return until I called them. The moment they reappeared, I could tell from Henning's face that they had reached some solemn decision. I could guess what it was.

Henning said: "We have decided that we must go away.

Perhaps in one of the provincial cities we can fit in somewhere. Our duty to you and to the Community——”

“Please don’t get mixed up in a lot of idealistic imponderables,” I said. “Sit down and listen to me.”

My voice was stilted and high-pitched. The inadequacy of it annoyed me. But they did not resist its authority. They sat down.

I went on: “You don’t seem to realize that, although I belong technically to the strain of the Newmen, I have inherited all your dislike of their civilization. In me, your rebelliousness is doubled. In fact, I’m prepared to go a lot farther than you are.”

“In what way?” demanded Henning.

“In opposing the child dictators of the city,” I said. “In opposing the whole concept of the Newmen, which is an affront to the dignity of adult man.”

“But how can you? It’s . . . well, it’s unnatural. We can’t expect you not to behave like the rest. The way you talk . . . the way you *are*. How can you make out you’re opposed to them?”

“I’m aware of the apparent contradiction,” I assured him. “But it will all be resolved in good time. Time,” I added, “is what I need. Time for thought, and planning. A year or two—during which we must keep the secret from Clayton and the others.”

I refused to explain further. There was too much in need of clarification in my own mind before I would confide in others; before I could give my orders.

The Community would learn in due time. The Community would be grateful to me, eventually.

For two years I was patient. For two years I went slowly and cautiously. I made a show of learning to walk in the clumsy, old-fashioned way that was common to all the children in Southerden. I evolved a ridiculous baby speech for public use—and rarely used the adult language I knew,

even to my parents, for it only upset them, and they could rarely grasp what I was talking about.

The weeks and months went by while I studied the situation and tried to shape the future to my own satisfaction.

Through the information and visual images acquired from my mother and father, I knew nearly all there was to know about the Southerden Community. There had been few new developments in the area since I had been born. When I was in any doubt, or wanted to check on a point, I asked Henning briefly for details. Reluctantly, he would answer my questions. He no longer tried to treat me as a baby—his early affection had gone now, and his face was bleak with loss. It was only with the greatest difficulty that he could bring himself to play the game in public of being an adoring father.

Myrna was better. She sometimes had a yearning expression in her eyes when she looked at me, though, Did she hope that somehow it would all turn out all right?

I saw Southerden, through their eyes, as they had seen it during the first few weeks after their arrival. They had been happy then. Their vague idealism became exultant. Life was simple and full of promise.

The fishing village of Southerden stood at the entrance to a small harbour. Behind it, the hills rose gently to farmland above. The arc of the bay formed a protective arm—it enclosed the village from the wind, and the hills helped to cut it off from the world that its inhabitants had left.

Fishing and farming—two of the oldest means by which man had learned to exist on this planet. Basic and primitive. The sea and the land, offering their eternal challenge.

Those men and women who had turned their backs on the regime of the Newmen accepted the challenge as their ancestors had accepted it. In the rhythm of village life they found satisfaction. Their children grew up gradually, and gradually learned to plough the land and draw fish from the



sea. They fumbled their way towards elementary knowledge. Children here were the taught, and not the teachers.

It was deliberate retrogression. They were swimming against the tide of human progress. But there had always been such stubborn recusants, and the Newmen could afford to be tolerant.

That was one of the first essentials on which I seized. The Communities, of which Southerden was only one, owed their continued existence to the tolerance of the very people whom they most hated. If the Newmen had wished to abolish the Communities, they could have done so without effort. Only their goodwill—or, rather, their indifference—made it possible for these groups to go on existing.

We were here on sufferance.

Other folk in Southerden might take this for granted, or might never pause to consider it. But I was infuriated by the arrogance of it. To the Newmen we were all beneath contempt—we were not even worth the trouble of abolishing; we were quaint, foolish, insignificant . . . not to be taken seriously.

But I knew myself to be as good as the Newmen.

The seed of hatred planted in my mind by my parents germinated. Soon it would thrust up its first shoots. Soon it would blossom.

When I was old enough to be taken out for short walks without arousing the suspicion of the villagers, I often went with Myrna to the river mouth, half a mile along the coast from Southerden.

The river cut through the hills like a saw slicing through a barrier. But the river itself was the barrier. On this side lived the Community; on the other were Newmen.

Not all the Newmen lived in towns and cities. Agriculture was still important—particularly as practised by these highly-trained, gifted experts, who tackled it with the devastating brilliance their successive generations showed in

every subject. Newmen living in the country were in no way mentally retarded—prospective parents could attend mass clinics in the nearest towns and receive a modification of the original pulse injection. It was an expensive process compared with the radiation blankets of the cities; but it was nevertheless cheaper than a radiation grid system over the whole countryside would have been.

I stared across the river at farms on the slopes on the opposite side.

Smooth, silent machines clambered over the ground. Robots went gliding swiftly about their business. An occasional human being would come out to inspect the work, and would, perhaps, look across the river at us. Once a middle-aged man waved condescendingly.

Over the sea, aerial magnetic fishing went on with ruthless efficiency. Sometimes our old fishing smacks would run across the line of the aircraft, and then they would switch off and wait—again condescending, contemptuous, tolerant . . .

One day I was left alone in the small garden at the back of the cottage. Sunk in thought, I unlatched the gate and walked out. My steps led me down the road towards the river. I was singing to myself—a song that I knew without having ever heard it; a song my mother had known as a child.

The words shaped themselves automatically. Without realizing it, I was singing aloud, strongly.

Realization came when I found myself suddenly face to face with old Clayton. There was no time to change my expression, to look bewildered, to put on the gestures and stumbling uncertainty of a child. From the look in his rheumy eyes I knew that he saw me clearly—he saw that I was not as other children in the Community were.

I confronted them all in the Community meeting place, a wooden building on the waterfront.

At first Clayton had tried to take the law into his own hands. He had tried to have me driven away—to throw Henning, Myrna and myself out—without any more ado. I can still hear him screaming:

"Get 'em away from here—the child-governed—they're dangerous. Out with them, before it's too late."

But I talked him down. My puny child-body quivered with an instinctive, animal fear which I could not control, but I stood my ground and out-argued the old man. It was not too hard. I had reached far beyond his simple intelligence. I knew what thoughts and ideas to appeal to, what breaches to concentrate on in his defences. I could out-think that surly, limited mind of his.

I talked him into allowing a public hearing. It was in accordance with the traditions of the Community—the old, revered traditions. When he had agreed and gone away to arrange it, he must have been puzzled as to how he had let himself be manoeuvred into such a position.

So I sat on the platform with Henning and Myrna, and with Clayton and a couple of other older people who had founded the Southerden Community.

And I said: "My mother and father didn't want me to be a memory inheritor. It wasn't their fault. They didn't know I was going to be like this."

"But now that you are," growled Clayton, "there's no place for you here."

"I belong here."

"You can't stay."

"I not only can," I said, "I must. For your sakes more than my own. For all our sakes."

People in the body of the hall rustled and whispered. There were murmurs of mistrust.

Clayton said: "We want none of your sort here. The Communities were founded for those of us who didn't want any part in a world where children run mad."

"You've got to adjust. You've got to face certain problems. You can't——"

"We aim to keep this place the way it was when we started. Freedom from the Newmen—that's the whole idea."

"You can't just stand still," I said. "You can't allow yourselves to stagnate."

"He talks about stagnation. D'you see?" Clayton appealed to the audience, spreading his arms wide. His horny right hand clenched into a brown, knotted fist. "Like the rest of them. He wants progress, as they call it. He's here to fool us. He'll work on us—try to push us into spawning Newmen——"

"No," I said. "But the Newmen will be encroaching on us if we don't plan. Not this year, maybe, or next. But as the newer generations come along, they'll start to covet our land. They'll start to think of abolishing the reservation laws and taking us over."

"They've promised——"

"Promised! They'll find good reasons for evading their guarantees. As time goes on and their scientific progress becomes swifter, they'll be less and less patient with the scattered Communities. They'll want our land, and they'll want those of us who live on it to be out of the way. They put up with us now because the climate of opinion is in favour of tolerance. But soon . . ."

I went on fervently and persuasively. I hammered it into them. Naturally suspicious and resentful, they were very ready to believe in the eventual deceitfulness of the Newmen.

And they were right to believe. I knew that. The workings of the minds of the Newmen were easily comprehensible to me. The progressive temperament was something I could understand—the urge to move onwards, to lose patience with reactionaries, to pursue remorselessly that ultimate scientific perfection.

Only Clayton stood out. His pride was at stake. He refused to believe in the menace I hinted at, though if one

of his own people had put it to him he would have been the most outspoken on the subject. He saw me as a usurper. There he, too, was right. In time I would take over from him. It had to be. I saw that. Already I was beginning.

He growled: "You're up to no good. I don't know what schemes you've got, but they're not good for us. You're one of *them*."

"In a way I am," I quickly admitted. "Enough so to know the way they think and how they're likely to act. I'm aware of their potentialities—and of my own. But remember that I've inherited from my parents an instinctive revulsion against the Newmen and all their ways."

It was difficult to put across. He would not be convinced. But after a while he grudgingly held his peace. He could not realize how irrevocably I had, in my own mind, already declared war on the Newmen.

"The day will come," I assured the Community, "when we shall restore the old order to our country. The day will come when we turn off the evil machine, and the radiation will cease to be."

I was twelve when I killed old Clayton.

I had been very busy in the intervening years. I travelled about the country visiting other Communities, inculcating the spirit of antipathy towards the Newmen and fanning the flame where it already burned. It was easy for me to get about, even to penetrate the cities—it was obvious that I was one of the Newmen, and I was allowed into the cities without protest. Adults there treated me with respect. I made my contacts. In the Communities there was widespread suspicion of the promises given by the Newmen. They were ready to listen to me. And in the cities there were surprising numbers of older people anxious for an excuse to revolt against the young folk who dominated them.

Perhaps there would always be this stratum of the disaffected. Just as younger generations in the past had broken

away from their parents and defied the beliefs of their parents, nowadays the parents were resentful. As one generation succeeded another, there would always be this envy and unrest among those who felt themselves being left behind.

In some of the Communities I met one or two others like myself. Henning and Myrna had not been the only couple to delay leaving the city until it was too late. I heard stories of some who had been sent back; but there were others who had been allowed to stay. They might prove dangerous rivals. Or so I thought at first. Then, as I cautiously explored, I found that none of them constituted a serious menace. Not one had the strength of purpose which was a legacy to me from my parents. They would be my lieutenants—none of them would aspire to becoming the commander.

The organization was gradually built up. Patience was essential.

At first, as I travelled and preached the doctrine of eventual resistance to the Newmen, I was met with scepticism and suspicion. Then, as time went on, I received more and more support.

"The Newmen won't be patient for ever. The Newmen will forget their promises sooner or later. The Newmen will want our lands—and our children." That was the message I preached. Repetition drove it into the minds of the Community dwellers.

Before very long it was *they* who were impatient for action. They clamoured for an armed uprising. They wanted to set up sabotage groups at once which would infiltrate into the cities and destroy the power plants.

I insisted on patience. Nothing would be achieved without long-term planning. We were puny—the Newmen were not altogether unjustified in regarding us as insignificant. When we finally struck, we had to know precisely what we were doing. There would be no second attempt if the first one failed.

I restrained the rebellious elements. A grand strategy would take years to develop. We must be sure of every man and every detail before we moved. Our contacts must be perfect, our lines of communication infallible. Surprise was everything.

The length of time involved was, I admitted, a danger in itself. In all that time, in all the quite separate groups which were held together only loosely by my travels and my growing organization, surely there would be one traitor? Word would leak out somehow.

But the years went on; the plans matured slowly; and still the Newmen did not pounce. Nobody defected from our ranks. The mere fact that people had turned their backs on the Newmen in the first place seemed to be sufficient guarantee of their sincerity.

I moved in and out of the cities, and aroused no suspicion. I established my contacts, and none of them broke. The resistance movement took shape.

But there was still Clayton.

Old enough to be the grandfather of most of the members of the Southerden Community, he grew more and more bitter and surly as time went on. He had set himself up as the grand old man of the village, and it irked him to see me assuming control. I knew that he hated me. I knew that if ever an opportunity presented itself, he would treat me as he wanted to treat all the other Newmen. Given an opportunity, he would have got rid of me.

Which is why I felt quite justified in doing what I did.

I had gone for an evening stroll along the shore, thinking out one or two problems of co-ordination. The rhythm of my steps kept my mind moving steadily in a similar rhythm.

Next week, I thought, I must go up north. The Newcastle group needed an encouraging word. Immured in their artificial city, they were growing restless. They wanted to

overturn the children who surrounded them, giving orders and wrenching life more and more out of its old pattern.

If, after that, I could go on for a few days to . . .

"Hello," said old Clayton.

I came out of my reverie with a start. I was annoyed. I did not like being disturbed in the middle of making plans.

I said, coolly: "Good evening."

He looked down at me and shook his head wonderingly. Then he glanced up at the sky.

"Yes," he said. "Come to think of it, it *is* a good evening. Fine light on the water down there by the shore, isn't there?"

I hadn't noticed. I turned to look. Presumably he was right. But what did light on the water matter?

We were only a few yards from the edge of the river bank, shored up here where it emerged into the sea. Beyond, lights blazed on a hillside farm, and there was a faint, gentle hum that drifted across to us.

Abruptly, Clayton said: "You'd like to be one of 'em, wouldn't you?"

"I don't know what you mean," I said—not because I didn't know, but because this was how conversation was carried on in the Communities; it caused a bad impression if I seized on a point too quickly and flashed out a comprehensive answer. Here, one did not tackle a subject directly—one nudged gently towards it.

"You'd like to be over there," he snarled, waving his hand derisively across the river. "You're one of 'em. Don't tell me different."

"You are well aware," I said, "that all my energies are devoted to planning for the day when the regime of the Newmen can be ended. I'm one of you. I disapprove of the rule of children as much as you do. It upsets the natural order of things. The balance of the human race has been seriously disturbed, and I am as determined as you are that one day it must be set right."

"So that you can be boss?"



"The question doesn't arise."

The dying sun struck a queer, fierce red spark from his eyes. He said: "Oh, yes, it does. Jealousy—that's all that drives you."

"You're mad."

"I'm not mad," he said. "I can see straight. I can see that you couldn't go back to the cities because you'd be nothing there. A nonentity. Kids of your own age'd be ahead of you, and when the next lot came along you'd be one of the slaves, like every other grown man and woman in those places. So you want to rule this place instead——"

"I want to re-establish the old order," I insisted.

"And put yourself in charge? The glorious liberator, eh? The one-eyed man, king in the country of the blind . . ."

We stood on the edge of the bank now. I had not remembered walking there. I was conscious only of my hatred for this man—a hatred to match his own for me. Because he was old, he thought he had the right to be offensive to me. The old had many lessons to learn.

I said: "You don't understand. You never will understand."

"I understand why this Community was formed," he said. "And I understand what will happen to it if you have your way. A war—destruction. All for your own glory. All because you're lost, son. Lost. Neither one of us nor one of them."

I thrust my face into his in the gathering dusk, and shouted: "I'm one of you. The only one with any foresight. The only one who can save you."

"Lost," he repeated. "And because you're lost, we've got to pay for it. It's a heavy price."

It was then that my patience gave out. In that instant I saw that he might still ruin everything. With his malicious tongue and his refusal to face the harsh truths of our time, he might turn people against me. I could afford to run no

risks. For the sake of the future—the future of the Community—action had to be taken.

So I killed him.

He saw it coming, and laughed. I remember his laugh even now. I remember it in the same way as I remember experiences from my mother's and father's memories—it is etched on my mind, unforgettably, the way they are.

His eyes widened as I struck him. His harsh laugh rang in my ears for a long moment, and then fell away as he plunged from the bank. There was a splash as he struck the surface of the water.

I swayed, and then turned and went away. By the time I got back to Southerden, I had evolved a story which made the best possible use of the incident. There was no point in wasting it—it could be employed to stiffen the spirit of resistance in the Communities.

I quickened my pace as I reached the end of the village street, and looked around wildly. The first person I saw was Tom Bentley, a middle-aged man who shared one of the fishing smacks with my father.

"Hello, there, Peregrine," he said doubtfully, as I called to him.

Always they respected me, now; but always they were uneasy in my presence.

I said, breathlessly: "Something's happened along by the river. I'm sure one of our people is in trouble there."

"Who?"

"I couldn't tell. I was too far away."

"Go on." He glanced in the direction of the river. The shore was shrouded in mist, and the line of the hills above the bay was only faintly blacker than the sky behind. "What did you see?"

"Someone was standing on the bank, on our side. And he seemed to be . . . well, pulled in. It was as though some-

one in a boat had come quietly up below him. Someone . . . or something."

In a matter of minutes a small group was formed. Armed with knives and jagged pieces of wood, some of the burliest men in Southerden made their way towards the river. There was not a sound.

Apprehensively, the leader peered over the edge. I came up beside him.

"I'm sure it was here," I said. "One minute he was there; the next, he was gone."

"You think someone came over and got him?"

"Someone," I repeated, "or something."

I could sense their uneasiness. The robots on the other side were hated. The uncanny, inhuman movements of those efficient creatures made the hackles rise. The thought of some deadly, remorseless, soulless thing being sent across the river for some reason, and for some reason dragging one of our own people in . . .

It was a nightmare. Senseless, irrational—yet compelling, like a nightmare.

"Maybe," said Tom Bentley, "it wasn't one of our folk who got pulled in. Maybe the figure you saw was one of their own people on this side."

Either way, the thought was a disturbing one. The Community wanted nothing to do with human beings from the other side, or with their inhuman creations.

We went back to Southerden. And by morning it was realized that old Clayton was missing.

He was never found. His body must have been swept out to sea by the swirling tide in the narrow estuary. That was how I imagined it; but I did not mention this to anyone. They muttered among themselves about the Newmen, who had come over and captured one of us.

"But why?" asked my father in an argument. "What point would there be in that?"

"We don't know what the Newmen are up to," said Tom Bentley darkly.

"They wouldn't want to kidnap one of us," my father persisted. "They know all about us. They know we're only men and women—we've got nothing to offer them."

"Except, perhaps, details of our plans to take back the country one day," said Tom Bentley.

The men in the small group turned to look at me.

Henning said slowly: "If your plans have involved poor old Clayton in trouble——"

"Clayton was never taken into our confidence," I returned.

And Tom Bentley at once said: "I wasn't meaning to fix any blame when I said that. It was just an idea. And if it's true, it shows that Peregrine's been right all along. If they're that sort of folk, we're right to oppose them. We're right to hit at them when we get the chance, all along the line."

They tried to discuss some way of establishing the facts of what had occurred. But it was a hopeless proposition. Where did you begin on a thing like that? The Community had, of its own free will, cut itself off from the Newmen. To appeal to the laws and judicial system of the Newmen would be to invite scorn.

"But we've got to do it," said Henning. "The laws of this country are still the laws of this country. We can send in a formal request for an enquiry. The government in London won't let Newmen in this part of the country behave just as they like. Kidnapping—murder, maybe . . ."

I said: "There have been deaths in other parts of the country at one time and another, and who has ever got any satisfaction from the Newmen?"

They listened to me. They had none of them made any real contact with Communities in other parts of the country, so they had only my word for these things. I told them how communications from the Communities to the Newmen were ignored, how protests were laughed at, and how impossible it was to establish even formal relations with

Newmen who lived, perhaps, only a mile away over a hill or beyond an adjacent river.

"That's the way we wanted it," interposed Tom Bentley. "So I reckon we've got no grudge now. No more than we've always had, anyway," he added grimly. "Being dispossessed—grown men having to leave the cities to escape children—we've always faced up to that, and this doesn't make any difference. It only makes us more sure."

They followed his lead. They had to agree that there was nothing to be done. Nothing yet. The day would come, as I had promised.

Sometimes I lay awake and thought about what Clayton had said on that last day of his life.

It came back to me, nagging at my memory. It came back like his laugh, with a thousand echoes. Simpler people would have been able in time to blur over the words and forget them; but my mind could not relax its grip on anything like that.

"Jealousy . . ." he had said. "You want to rule this place instead . . ."

"The one-eyed man, king in the country of the blind."

Was it true?

I came in the end to a cool recognition of my own pathological condition. This ability to analyse one's own faults was another attribute of the Newmen. I saw that the emotionalism I had inherited from my parents was driving me to behave illogically; but this realization did not in any way affect my determination. I had to accept the fact that I had certain obsessions. I knew that it was impossible to alter them. The ability to see them clearly did not mean that I could overcome them. I knew better than that. I knew better than the crude psychologists and religious moralists of earlier centuries.

Perhaps it was true that I was jealous of the Newmen who controlled the advanced civilization of the cities. I sensed

what delights they experienced in the exercise of their mental faculties. My own were clamped to the ground by circumstances. In the Community I could not use my abilities to their best advantage.

But if I could not be a ruler in the cities, I would be a ruler here. I would lead a campaign.

I would be all the things Clayton had accused me of being.

And Clayton was not the only one to accuse me.

The time for action was drawing near. We had been patient, and soon this patience would be rewarded. I had chosen the time of the Conference of All Nations—when that opened in London, we would strike.

It was then that my father called me a madman.

"A fanatic," he cried in my face. "When the world is at peace, you want to make war——"

"Only on the false civilization," I said.

"It is world-wide now. As long as we are allowed to live out our lives in peace——"

"Will there be any peace in your mind if you allow the Newmen to take over the Communities? Are you going to be resigned to the dying out of the Communities? We know what we must do. And it shall be done."

World peace. That was true. But to me, and to the men who were my followers, it was a detestable peace. The boasts of the Newmen had been fulfilled; and that was an intolerable state of affairs. The spread of memory and skill inheritance throughout the world had enabled men to grapple much more intelligently with international problems—the development of an international language speedily settled many difficulties of communication, and the leaders of different countries thought and spoke on a higher plane than ever before. The World Federation was formed with a speed which would have been incredible to politicians and pessimistic diplomats of the twentieth and early twenty-first centuries.

And the President of the World Federation was a boy of ten.

We did not have telescreens in the Communities, and we did not receive daily newstapes. The Communities had repudiated the world of dominant children, and scorned their inventions and gadgets. But in preparing the campaign I had been forced to establish some contacts within the cities which would supply news. Important social and political information reached me by a special messenger service. We used nothing in the way of radio transmission—dealing with a world of technicians, we did not dare to use equipment which could be tapped, traced and eavesdropped on.

I knew about the election of the President. He was Julian Larsen, the youngest member of a family which had given a dozen distinguished scientists to the world in the last hundred years. Even before the introduction of the Newmen radiation, the name of the Larsens had been held high in world opinion. Devoted, serious, living secluded lives and working in the interest of abstract truth, they were the paragons of civilization. Little was known about their private lives—all of them kept out of the public eye. But now, when a World President was needed and that man had to be of unimpeachable integrity and brilliance, it was essential that a Larsen should be drawn out into the blaze of day.

Julian Larsen, ten years old, would open the session of the Conference of All Nations in London. Surrounded by the Federation Government who had chosen him—like a college of cardinals, I bitterly thought—he would preside over one of the greatest conclaves of representatives of nations at peace that had ever been assembled.

He would be in London; and he would die in London.

"You're a fanatic," said Henning to me yet again. "What

will the murder of a boy achieve? If the Newmen have been able to bring world peace, let us leave them alone."

"They will not leave *us* alone," I said. "Not much longer."

"You can't defeat them. They'll outwit you."

"No." I was sure I knew their weaknesses and knew how to defeat them. The implacable urge was not to be denied.

"What can you hope to achieve?" Henning went on desperately. "You say you're fighting against the Newmen. You claim to represent the concept of the dignity of the older generation as against the dominance of children. But you yourself have dominated the councils of the Communities. You've become one of the Newmen in thought as well as . . ."

He fumbled for words. He was lost in complexities with which he could not grapple.

I said: "Whatever I am, and whatever I do, it is your legacy to me."

Myrna put her face in her hands and wept. She was very emotional, and absurdly naive. And unreasonable—for it was true, was it not, that my feelings towards the Newmen were inspired by her and Henning? Because of them, I was a weapon designed to attack and demolish the Newmen. I had been fashioned only for that. In every fibre of my being I felt it.

Abruptly, from out of nowhere, a memory surged up into my mind. It was a picture of Southerden—a small village in the sunset, with a fishing boat coming into harbour. The breeze from the sea had a salt tang, and made a faint whistling sound as it blew between the houses. I was conscious of happiness—and tranquillity.

The memory was one of Myrna's. It came from her early days in Southerden. It gave me a picture of Southerden that I rarely saw nowadays. I rarely looked at the village itself—it was merely the place in which I worked and schemed.

I felt strangely moved. This was how it ought to be. In



years to come, when we had defeated the mechanistic system of the Newmen, and all people were free to live as Nature meant them to live, it would all come back to this—I would sit in my old age in a cottage, and watch the sun on the water and the children playing as children were meant to play along the shore . . .

It was a thought of sweet simplicity.

But I was not simple. I could never be like that. This was the ideal for which the Communities had been formed, and it was this ideal which I preached when I organized resistance to the Newmen. But for me it was not enough.

I did not yet know what would be enough.

The vision faded. I had no time for sentimentality. The road ahead was plain. It led inevitably towards the death of Julian Larsen. After that, the pattern of life would shape itself; after that, the roads would have to be built anew.

On that bright, cold October day we struck.

The timing was perfect. Southern Group Five entered the power station south of the Thames and demolished the generators. There was no opposition. It was a day of festivity, and there were no guards on the power station.

In point of fact, there were no guards anywhere. The Newmen had grown over-confident, it seemed. World peace had become such a certain thing that precautions of the most obvious kind were no longer taken. The power station rocked and crumbled under the impact of carefully placed explosive. The radiation blanket over London died.

In the provincial towns and cities, similar attacks were being made simultaneously. They were equally successful.

At the same time, my forces pounced on radio stations and took over telescreen transmitters. At the very moment that President Julian Larsen was entering the Council Chamber of the World Federation Hall, erected on the site of the recently demolished Old St. Paul's, telescreens

went blank for a moment. Then vision was switched on again.

All the technical details were in the hands of city-bred rebels. I had chosen carefully. I knew whom I could trust, and they did not fail. Older men who had worked for years in the radio offices all over the country now assumed control.

The Newmen had believed too firmly in their imposed peace. They were not ready for assault.

"They've grown smug," I said to Michael Martin, a young man from the north whom I had chosen to act as my lieutenant in the opening campaign. "They are too complacent. They never expected a revolt from the despised country-dwellers!"

In the grand assembly, no word could reach the delegates. They were too deeply engrossed in their solemn ritual of speeches and declarations. Their faces and voices were carried out to telescreens all over the world. Even the technicians on the spot did not know that their headquarters staff had been replaced by rebels.

I watched the President on the monitor screen in Radio House, in the heart of London. It was strange to see that boy mouthing platitudes and to know that very shortly he would be dead.

In the middle of his speech of welcome, he stopped abruptly. A strange expression crossed his face. He put his right hand up to his ear as though feeling a momentary pain.

There was a murmur in the Federation Hall.

His silence lasted for a second only; but it seemed a long second. Then he looked up, and it seemed that his eyes were peering out of the screen into mine.

Something had gone wrong. But how? It was too soon for him to know yet. He had no way of knowing.

He said: "I have just received news of a misguided attack

on our government. Guerilla forces have made concerted assaults on our main cities, and seized the radio stations."

The fretful murmur in his audience rose like the roar of a descending wave, then splashed into fragments and rustled away.

"There is no cause for alarm," said Larsen glibly. "We had not prepared for such wanton outbreaks of war; but we were not altogether unprepared, if I may put it that way." His thin, confident smile was infuriating. He was talking nonsense. "Although it has been against the principles of the Newmen to maintain armed forces since the signature of the World Covenant, we have always borne in mind the possibility that unruly elements might take advantage of the new enlightenment."

Martin muttered in my ear: "Excuses, that's all."

"We have always based our policy," Larsen went on, "on the assurance that the regime of the Newmen could not be overthrown within a matter of weeks. We could have only one enemy—the reactionaries who have been allowed to live in peace away from our civilization. If these barbarians"—again he seemed to be staring into my eyes—"chose to launch an insane attack on us, we have always known that we could afford to lose a few yards."

"A few yards!" I echoed furiously.

"Things have happened as we foresaw. It is regrettable that force should once more have to be used. It is regrettable that strife should have broken out once again in a world which we believed to have been freed from the menace of war. But order will soon be restored. Already the radiation blanket, cut off momentarily by an act of sabotage, has been restored. A secondary station has come into operation——"

"Cut him off!" I snapped. "Cut transmission, and put our proclamation on."

Martin snapped an order into the internal speaker. Almost at once Larsen faded, and suddenly one of our own men

was on the screen, beginning to read the message we had prepared so laboriously.

I hurried out of the room. Julian Larsen had caused a slight upset in our plans, but if we moved fast it would not be serious.

Yet how had he received that message? He could not have known before he went into the Federation Hall, for the carefully timed attacks had not been unleashed then. Nobody had approached him while we had been watching him on the screen, and he could not have received radio warning—for the radio stations were in our hands.

My commandeered helicar sprang from the roof of Radio House, and spun down like a madly windblown leaf to the landing ground by the spacious Federation Hall.

Two men moved towards me from the main door.

I tensed, then walked briskly to meet them.

One said: "Have you got a pass?"

"I'm from Radio House," I said. "Urgent news from the Controller there to the President. It's been taken over——"

"Radio House as well? We heard something from inside, but——"

"I've got to have a word with him."

If I had been an adult they might have suspected. They looked doubtful as it was; but they were in the middle thirties, and I was only a boy. I spoke in a voice of command—the tone they were accustomed to—and before they had time to wonder, or to argue, I was hastening into the Federation Hall.

The corridors were almost deserted. At one corner I saw a uniformed attendant coming out of a door. As it swung open and then shut, the murmur from the conference hall buzzed out like the sound of bees, and then was cut off. He glanced at me; but I went on, out of sight.

I knew the way. It had all been mapped out. Admittedly things were not what they ought to have been—the alarm

had been given—but there was still no reason why the pieces of our plan should not lock firmly together.

Even as I opened the door of the President's ante-room, I heard the muffled thunder of the explosion outside. The sound was further away than I had expected it to be—to seal the doors, the explosion ought to have been closer and more jarring; but my men knew what they were doing.

An elderly man by the door on the far side of the ante-room turned.

"What are you doing in here? You know the President has requested privacy. Everyone knows——"

"This is urgent," I said. "I've escaped from Radio House."

I hoped that the others were close behind me. I hoped that they were assembling by the doors of the conference hall, ready to swoop.

The man said: "He's coming off the platform now. We've heard rumours—he made an announcement . . ."

Julian Larsen appeared in the doorway. He was an inch shorter than I was, and I thought how insignificant and unworthy he was.

"What is it?" he asked, glancing at me.

And then his face set. Awareness blazed in his eyes.

I jumped, took him off balance, and stabbed him. Once . . . twice . . . His head fell loosely back, and the gash across his throat began rhythmically to pour blood.

The man by the door squealed, and made a vague movement of his arm. I caught him, pulled him close, and smashed my fist into his face. He went down.

Then the door to the corridor was flung open. I swung exultantly round to greet my followers.

The faces were the faces of strangers.

Four of them were forcing me back against the wall, while another bent over the President. When he got to his feet there was a disturbing sadness in his face. No hatred, no vengeful fury; merely sadness.

He was a man in his early twenties. He came and stood before me. I thought he would strike me, but he simply shook his head.

"You have murdered a fine man," he said gently.

"That's only the beginning," I said.

"You want to spread bloodshed?"

"We want to restore the old order," I said. "I advise you to release me at once. My men will be here any moment. We have seized power stations and radio stations. The Federation Hall, with delegates of all nations of the world, is surrounded——"

"It is not," he said in the same gentle, weary voice.

I snapped: "My men——"

"Your men," he said, "were rounded up before they got here. Your truck of explosives was blown up at the corner of the approach."

A chill, like the first cold breeze off a freshening sea, struck me. I was alone. The men of the Communities would have to fight their way through to reach me. It might take time. They might be too late.

I thrust my face aggressively forward. "But we've got Radio House, and its subsidiaries through the country," I said. "We've destroyed power stations. You can't stop us."

"We can. We are doing so already. We are re-occupying Radio House——"

"I don't believe it."

He nodded to one of the men holding my right arm. The grip was relaxed; but still there was one man on that side with fingers of iron.

The one who had walked away thumbed a wall control, and a small telescreen blinked into life.

I looked into the face of a boy announcer—cool, reassuring, precise . . . and not one of my men.

Pictures began to flicker on the screen—pictures of a brief bout of fighting in the streets of Manchester; of robot labourers already dragging shattered generators away from

their mountings and setting to work on the splintered flooring.

"It was a futile attempt," said the smooth-faced, sad-voiced man. "Why did you make it? Have you lost touch so completely with the Newmen that you don't understand what progress we have made?"

He was about to say something else, when suddenly he seemed to concentrate on me. I saw in his eyes the same look I had seen in those of the President.

He said: "How can it be . . . how can you be one of us, and yet not *aware*?"

"I don't know what you mean," I said sullenly.

Again he shook his head. "I see. So that is what it is? A rogue—a stray—a lost one. And you did not know that our latest two generations have developed their telepathic faculties?"

"Telepathy . . .!"

Of course it was to have been expected. At that level of mental development, telepathy was the next inevitable stage. And that was how Julian Larsen had received advance warning of our successful invasions of the radio stations.

"A few more generations," the unctuous voice purred on, "and we shall have no need of telescreens—or radio equipment of any kind. For the time being it is necessary for recent generations, for older people who have not been capable of developing the faculty. But soon the cumbersome equipment will be a thing of the past."

I saw the wonderful vista that could open up. It was magnificent . . . but not for me.

"You did not stand a chance, did you?"

"At any rate," I triumphed, "I killed your President. That will take some explaining away."

"Your men from the Communities succeeded in the first attack because of the surprise element. Once that was over, you could not sustain your position. You yourself got in

here because to older people you were clearly one of the Newmen. Again the surprise element—which could not last. Once Julian Larsen had seen you, the game was up. He sent out an instinctive warning. But we had already had a vague warning from you already—without fully realizing it, you were sending out discordant mental pulses. Many of us picked them up. We knew something must be wrong—which is why we picked up your load of explosives, and why we got to you so quickly. You yourself were the main cause of the failure of the revolt.”

“You mean . . . I’m telepathic. I could be——”

“You could have been one of us. If you had lived with us, accepting our disciplines and our regime, you could have developed the faculty in an elementary form at any rate. But it is too late.”

I drew myself up. “I did what I believed to be right,” I said loudly. “And people who still believe in our cause will be heartened by the knowledge that I reached the President—that it was possible to get this close, and remove him from the face of the earth.”

“The general public will never know that.”

I gestured towards the crumpled body. “But——”

The door opened again. A boy came in. I looked once more into the features of Julian Larsen.

“You did not think, did you,” went on that remorseless voice beside me, “that we would take chances with the President of the World Federation? He had to be the ultimate in human development—we had to elect a member of the Newmen free from errors, ideal for the post, and yet replaceable.”

“It’s impossible,” I shouted. “There couldn’t be more than one. You couldn’t have an exact, identical substitute . . .”

None of them answered. They merely nodded towards the duplicate Larsen.

“Two of them,” I said weakly.



The voice beside me said: "Identical twins. An obvious precaution, I think you will agree!"

They have given me a room with blank walls, and an unlimited supply of newstape. I have told them that I will dictate my memoirs, and they have agreed.

"The spirit of resistance is not dead," I have warned them. "It will never die."

They merely smile sadly, with their endless, infuriating tolerance.

"I shall dictate," I have told them, "a record of what has happened; and one day the record will be discovered, and the spark will burn again. People of the future will look back to me as the first to strike a blow against the Newmen tyranny. I shall let them see what happened. It will be an example for them."

"Yes," they gravely agree; "let them see. It will, as you say, be an example for them."

## FORECAST

**DEAD WEIGHT**, by Douglas West, is our new, book-length serial commencing next month. Everyone has, at one time, wished that he could live for ever. Most people, if they think at all, assume that a world without death would be a paradise. How wrong they could be!

**IDEALS DIE HARD**, by Isaac Asimov, is a gripping story of two men in search of the same goal—but taking totally different paths to reach it.

**ASYMPTOTE**, by H. Philip Stratford, is a fast-moving tale about a dictator who wasn't quite like other men. He could be killed easily enough—but he didn't stay dead.

**MELROSO**, by Duncan Lamont, is a little gem of a story, and one of the few science fiction stories which can be legitimately termed a spine-chiller. But you'll have to read it twice to get the full impact.

Together with many other stories by your favourite author's and articles of interest.

**AUTHENTIC—A MONTHLY MUST**

# The Trouble With H.A.R.R.I.

by EDWARD MACKIN

HEK BELOV WAS A MAN WITH A PROBLEM : HE  
WANTED TO EAT. SOLVING THAT PROBLEM WAS  
EASY—ALL HE HAD TO DO WAS TURN INTO A GENIUS.  
BUT THE RESULTS WERE NOT AS EXPECTED

CYBERNETICS IS NOT WHAT IT WAS. THE TROUBLE IS THAT there are far too many of us nowadays. What with the cut-throat competition and the self-repair jobs, I am ready for the bread-line any day.

It must be three months since my last job, which was a lousy little fish-meal factory whose owner had found it cheaper to work everything to repair-or-bust point than to employ a full-time engineer. All I got out of that was a fortnight's keep.

So here I am, waiting, like Micawber, for something to turn up, in a very bare office indeed, and with everything sellable sold. In fact, all that remains is the telephone, which is resting on the floor. I have three days, and then I shall be gone, too. Possibly to gaol.

I am commiserating with myself while I pace up and down the carpetless floor, and at the same time thanking my semi-lucky stars that it is getting into summer time, so I shall not miss my overcoat for some months.

Then the doorbell rang. I stood perfectly still thinking it might be a creditor, or possibly the police. They are very hard on debtors these days.

When the bell rang again I crept over to the door and peeped through the keyhole. What I saw was another eye looking at me.

"You might as well open the door, Hek Belov," said a familiar voice. "I can hear you breathing."

I pulled the door open, and dragged the owner of the eye in. It was Meerschraft. Meerschraft the fat, the amiable, the *generous*. An angel from Heaven, and a damn fine cyberneticist, too.

"Come in, you devil!" I said. "Here, sit on this clean bit of floor. I have eaten all the furniture, although some of it wasn't mine. Meerschraft, old friend, are you in funds?"

"Well," he said, cautiously, "I have a job; but it doesn't pay too well. As a matter of fact, I am here to offer you a similar position, although perhaps only of a temporary nature. I told my boss that if any man can solve this problem it is you. I said: 'Belov may be a lousy engineer; but he has that something that you and I lack. He has that sympathetic touch that machines love. They tell all their secrets to him, and he knows their language.' You know Professor Ratoff, of course? He runs the cybernetics department at the Hilberry Research Station."

"I don't know the professor," I told him, sourly, "and I didn't know you were such a snake-in-the-grass! *A lousy engineer* . . . ! Thank you, Meerschraft, for the build-up. And what did Professor Ratoff say then, you swine?"

Meerschraft grinned.

"He said, quote: 'He couldn't be any lousier than you. So get hold of him.' Unquote. He also said that if you were unsuccessful I would be out on my fat ear. So it is up to you, old friend. I have an air-taxi waiting."

"Wait a minute," I said. "What's the job? You might give me a few details."

Meerschraft made some vague movements with his hands and arms, as though he were trying to conjure something into our presence.

"It's a kind of computer," he explained; "but it's no ordinary computer. The thing has a mind of its own. At least, it did have."

"Clear as mud," I said. "Anyway, I must have five pounds on account. Otherwise I don't move a step from here. As your job appears to be at hazard . . ."

I left this sentence unfinished. Pure blackmail, of course. Meerschraft sighed, and pulled out his wallet.

"Here," he said. "You crook! Somehow I think I should have known better than to recommend you. It always costs me money. And this time it may cost me my job."

"Not it, my dear friend," I told him, warmly. "Consider this thing as good as fixed—whatever it is. My friend, you are in line for promotion, and a substantial bonus. Your employer will have reason to be grateful to you."

"Ratoff," said Meerschraft, bitterly, "wouldn't give you a wink if he had an eye tremor."

On the way over to the research station Meerschraft explained the set-up. Hilberry was established under the Williamson Trust Fund, and was concerned wholly with the science of communication. The machine I had to deal with was a homeostatic and reflective reasoning instrument, or HARRI, as it was fondly called.

HARRI had been constructed not to solve equations, but to deal with concepts and events. As it was an inductive logical machine it could learn from experience, and it had been provided with a simple vocabulary of 420 words. The man who built it was that great physicist, Dr. Gosse Williams. He had built it and died, leaving Dr. Ratoff, who knew nothing about computers, holding this somewhat cumbersome baby.

"It worked all right at first," said Meerschraft, "and even extended its own vocabulary to 5,000 words within the first week. Then something went wrong with it, and it

hasn't worked since. If you fix it, Hek Belov, you can call yourself a genius plus."

He wasn't kidding. One glance at the machine and I realized I had been taken for a ride. Meerschraft had talked about variable circuit loops, and arbitrary levels in a way that had left me thinking that they were all part and parcel of this monstrosity. Not that I knew much about these things. Higher maths always bogfound me, and Meerschraft had trotted out a whole string of equations that I had nodded yes to without understanding a blind one.

Damn it all, I'm a practical man! I know a digital computer when I see one. I'm that practical I could re-wire any one of half-a-dozen types blindfold. It's a gift. You either have it or you haven't, and a headful of symbols is no substitute.

One peek at this rig-up and I thought Heaven help my creditors!

"I'll give you twenty-four hours," said Ratoff nastily. "If you don't come up with a solution in that time you won't get paid, and Meerschraft will be fired for wasting my time."

He stalked out and Meerschraft followed him, with one shoulder lifted high and his hands spread. It spoke volumes. Ratoff was a mean man. He meant what he said. I took another look at the machine, and then I thought of what Ratoff had said about a *solution*. This was significant, and it reeked of something I couldn't put a name to; but which was distinctly fishy.

What had started out to be a simple repair job had become a major project. I was being taken for a ride all right, the loused-up circuits told me that. The thing wasn't even a computer. It had been once, perhaps; but it looked as though some novice had been at it. There were connections that ended in mid-air and there were components without connections.

The solution that Dr. Ratoff had spoken about was nothing less than building a genuine think-box from scratch. I was supposed to solve in twenty-four hours what someone had taken a lifetime to figure out.

For a moment I was tempted to re-wire it as a plain digital computer; but they didn't want a digital. They wanted a kind of super-brain. What they had, it seemed, was a heap of junk. At least, it would be if I put the switch in and no one could tell me any different.

It began to dawn on me what had been going on. They'd had the clever-clever lads in first, instead of sending for old Belov. I ground my teeth, and spat on the floor. Poor, I might be; but no one could insult me with impunity.

I went to the door and turned the handle. It was locked. I shook it and shouted my friend at the top of my voice.

"Meerschraft!" I bellowed. "Meerschraft, you dog! Open this door, you fat snake, till I tear your liver out!"

I shook the heavy plastic door and rattled the knob; but no one answered. Then I saw the box. It was a plain, metal box, and it hadn't been there before. I was certain of that. You have to have sharp eyes for my job. It was a pity that I hadn't sharp hearing as well. Someone had opened that door while I was inspecting the computer, and shoved the box in.

I opened it warily. And then I laughed. I felt happy again. It was packed with food—including a big cherry pie. If ever I wake in Heaven the first thing to greet me will be the aroma of cherry pie. There was a large flask of coffee, too. At least they didn't intend that I should starve.

I sat down by a long bench littered with test gear and devoured every bit of food in the box. I hadn't eaten properly for days. It seemed that Meerschraft, the fox, hadn't forgotten! Feed me and I am a roaring genius. Starve me and all I can think about is food. I lit a cigarette, and

between swilling the coffee down and smoking I ruminated on variable loops and arbitrary circuits. To be quite frank, I wondered what the hell they could be!

I left this alone after a while and posed the question direct. What was the difference between thinking man and non-thinking, but lightning-fast computer? Then the answer hit me and the mind barrier was broken.

That's the way it is with me. I get flashes of inspiration in the same way as a poet, and they excite me because I know they're good. Not accurate, maybe, but as long as they work, who cares? Let the clever boys dress them up in maths. I think in terms of solid circuitry.

The general idea comes first, and then a bit of the circuit flashes on the inward eye, as Wordsworth once said in another connection. I am very fond of the poets. I might have been one myself; only the rake-off is worse than cybernetics.

Anyway, the answer to my problem lay in the question, as answers so often do. What was the difference between thinking man and non-thinking machine? Just that, of course. A machine didn't think. It just banged out the answer straight away. The *only* answer that had been fed into it.

With man it is different. Ask him a question, and you never knew how he might reply. He might know the right answer—but there were other near-answers and nagging little paradoxes, and absolutely crazy notions, all simmering together under that pot-lid cranium. A thick stew of reason and unreason.

Sometimes a hitherto crazy notion ousted the reasonable answer, or posed a question itself, and a new idea or a great invention was born. Sometimes reason was submerged under a flood of unreason, and the result was insanity as the tortured mind dredged things up from the communal subconscious.

With the computer it was different. The computer was too reasonable; too one-track. You asked it what two and two were and it said *four*. Nine out of ten men would have said the same; but the tenth would have asked: "Two and two what? Two males and two females? Or two elephants, a button-stick, and the Empire State-Building?"

That was the trouble with the computer. It was too thinly logical. Too mathematical. It needed a diversity of ideas. It needed a whole heap of nonsense feeding into it. It needed to be slightly crazy—like man!

Two hours later I had completed the hook-up. I switched on and asked it one or two simple questions. I was using the binary number system which had been tailored to fit the alphabet on this machine. The crystal memory-valve indicator showed totality as zero and the answer strip was running out blank. So I started feeding in. First of all facts, facts, and more facts, and then whacky, and half-clever notions and bits of poetry, anything and everything that came to mind.

I must have worked at this for hours before I asked it anything else. Totality had crept up to one per cent., so the memory banks were okay. The answer strip gave the answers I had expected. The ones I had fed in. It was obvious that the thing wasn't using those variable circuit loops. They had locked in one position.

I kept banging in the same question and getting the same answers. The question was: *What is darkness?* The answers it kept giving were: *Darkness is an absence of light*, and a conflicting concept, also supplied by Belov, *Light is an absence of darkness*. Neither of these concepts was strictly true. A blind man doesn't sense darkness, or light. He sees precisely what you see out of the back of your head.

Take a good squint at it, for you are looking on a mystery. You should experience horror and awe and reverence.



From out of this, eons ago, we poked our snouts. Tell me, my friends, what is it? You don't know? Then let old Belov tell you. It is nothing and it is damn near everything. It is the rest of the infinite universe that lies beyond the range of our five senses. Sometimes I think that man is resented—an impertinent questioner with a three-dimensional foot in the door of a multi-dimensional universe.

As I saw it, the conflicting concept of darkness as a positive phenomenon kept nagging at the electronic brain because the vibration increased each time, and then it blew a fuse and went dead. The easy way out, of course. The thing was dodging.

Having tried first one set of concepts and then the others, and not being able to circuit any on a purely logical basis, it had taken refuge in its own protective mechanism and thrown a faint. It was the Victorian lady's trick to escape an embarrassing situation.

It wasn't escaping that way, though. Out came the fuses and in went thick wire connectors. I was risking everything now. "Go on, you dope," I told it, "start thinking on your own account or blow your top. Please yourself."

I hated to think what Ratoff would say if he knew. Have me thrown in gaol, I supposed. But it was worth the risk. I was certain that the thing could answer at the expense of a little painful effort . . .

It vibrated, shrieked and groaned while I stood and cursed it. A wisp of smoke rose from somewhere inside the tortured mechanism, but somehow it didn't quite burn up. Gradually, it dropped back to its old smooth purr. It had resolved the situation somehow. I waited for the answer.

The paper strip began to move. On it I read: *Darkness is from within. Light is from without. Darkness is a negative phenomenon. Not sufficient information to expound.*

This was it all right! I was not concerned with the validity

of the statements. It was thinking for itself, that was the point. By discarding one item of information and co-relating two others, it had arrived at a new and rather odd conclusion. It had also handed me a gratuitous piece of information about light. Oh yes, it was thinking, all right. All we had to do now was to shovel in all the information available on every conceivable subject—plus a few more bugs—and then we could ask it some really important questions, such as: *What do you propose that man should do to extricate himself from his present social and economic anxieties?* That was the sixty-four-dollar question. A waste of time, really. It was even money that the thing would answer: *Drop dead!*

Anyway, Meerschraft's job was safe, and that swine Ratoff owed me some money, although I'd be lucky to get enough to pay what I owed Meerschraft. I knew his type.

At least, I thought I did; but I was wrong. The first thing I found was that the door wasn't locked at all. I had been turning the knob the wrong way. When I reported progress to Ratoff he seemed surprised and faintly amused. Not a bit like what I had taken to be his overbearing self.

We checked up on the machine and then called Meerschraft. My fat friend came bursting into the laboratory in a great state of excitement.

"Belov," he shouted, "you're a genius!"

He slammed me on the back. "I knew you could do it," he said. "You told me so yourself."

"Yes, I did, didn't I?" I said. "But never mind the kudos. Just let me have whatever you consider the job is worth and I'll be on my way."

"Can you carry away a million pounds?" asked my friend, grinning. "Not that we are likely to give you that much; but that is only a percentage of what it is worth to us. Anyway, how did you turn the trick?"

I explained about shooting it full of bugs, while Professor Ratoff fed questions into the brain and conned the answers.

"It's learning rapidly," he said after a while. "We have at last what we thought might prove impossible. You might as well know that this is a Government project, and as such top secret."

"Oh, I can keep my mouth shut," I assured him. "Don't worry about me."

"There's something else," he added, and looked at Meerschraft in an odd way. "Perhaps you'd better tell him. It was your idea in the first place."

"Well," said Meerschraft, looking a bit sheepish. "To start a long way off—er—faith has been said to move mountains. What I mean is, if you believe something is possible it becomes possible of accomplishment. You see, you just proved it. It doesn't work with everyone, I know. Some men are natural sceptics. Others have rigid thought forms and patterns of behaviour . . ."

"Are you trying to tell me that I am not the first to have a go at fixing this machine? If so, save your breath. I could see that for myself."

Meerschraft nodded his head.

"It was fairly obvious, I suppose. I believe you were the twenty-first. It was borne on us eventually that we needed someone with a somewhat chaotic mind. A man with a flair for the unusual. A try-anything Charlie with the bare minimum of knowledge. We felt all along that this was not, in the final analysis, an engineering job at all, but a method of feeding in the information."

"I see," I said, hotly. "So you turned to old Belov. A try-anything Charlie with the bare minimum of knowledge! Meerschraft, you are a low-down, dirty dog! The whole thing seems fishy to me. I don't believe that your job was ever in danger."

"It wasn't. But I apologize. You have something that most of us lack. It is the equivalent of the gardener's green

fingers. The man who did most of the work on this machine died before he was able to crack the problem of how to give the brain the power of independent thought. We, all of us I think, only half believed in its possibility. The way I figured it the man who was most likely to succeed was the man who really believed that it could be done.

"How do you convince a man that a thing can be done? Simply by telling him that it has been done before. What has been done once can be done again—and even improved on. The classic example of this is the four-minute mile. It was thought to be impossible until someone did it, and then it became quite commonplace. You see, it is largely an attitude of mind. What I am trying to tell you is that this machine was hardly more than an ordinary computer until you, Belov, found a way to bridge the gulf between automation and independent action. You would never have done it if you had not believed that it had been done before—now would you?"

I didn't bother to answer. I was watching Professor Ratoff, who was making impatient noises and even swearing softly under his breath.

"Anything wrong, Professor?" I inquired, smiling to myself. I had been reading the answer strip.

"HARRI is not behaving himself," he told me. "Just read this strip."

I read it again. One answer had been repeated almost *ad nauseum*, and then the answer to what was obviously another question appeared, and then the first answer appeared again. I laughed. I couldn't help it. These clever fellows had forgotten just one thing, and it took old Belov to spot it—a try-anything Charlie with the bare minimum of knowledge. That hurt; but I was going to rub their noses in it before I was finished. Besides, they had no right to make a man invent something unawares.

"Gentlemen," I said, enjoying myself, "you wanted a thinking machine. You have one, thanks to old Belov. Now, if you'll just advance me something on account I'll be getting back to town."

"Not without ironing out this defect, or whatever it is that has just developed," said the Professor determinedly. "Come on, Belov, you must know what it is. After all, you fathered it."

"Let him go," urged Meerschraft. "He's done enough for one day. He can come back to-morrow and remedy it. Can't you, old friend?"

I looked from one to the other, and I gave them my sweetest smile.

"Neither to-morrow or ever," I said. "You wanted a thinking machine and that is precisely what you have. When the thing is thinking its independent thoughts it just bangs out the answer to any old question, perhaps absent-mindedly. Now and then it may answer one of your questions. When it has nothing better to do. But mostly it will be answering its own questions—and you won't even see the answers. Just consider that, gentlemen. It will be thinking twenty-four hours a day, seven days a week, getting smarter and smarter, until, finally, it knows all the answers. The questions may be biological, and the first thing you'll know about it is when it stretches out a thought and grabs you."

Ratoff looked worried; but Meerschraft just smirked.

"We can always switch it off," he said.

It was the cue I was waiting for.

"Listen, you fat ape!" I said. "If you stop a man's heart what happens? He dies! Shut HARRI down, and see what happens. You are dealing with an entity now, not a machine. Switch him off and he's dead; but in a few weeks' time it is my bet that he won't let you switch him off. I leave the problem with you."

I went out and slammed the door.

# TIME FOR YESTERDAY

by

WALTER G. SPEIRS

*AN INTERESTING ARTICLE ON THE LATEST METHODS  
USED TO DETERMINE THE AGE OF THE PAST*

**F**ROM BEYOND THE DAWN OF HISTORY VAGUE STORIES OF man's past have been handed down, stories of his origin, stories of his near destruction in cataclysms and stories of his future-to-be.

These are the myths of men, varying from one religious sect to another, and precise dating of the past depended on which priestly sect was accepted as the final authority. Yet only during the last decade can it be said that scientific guestimates of the age of the distant past have been any more accurate than the belief of one religion—Hinduism.

According to the Hindu sacred book of Manusmitri the Earth had its origin 1,972,949,057 years ago, a remarkably close figure to the 2,000 million years which, until very recently, was the scientific estimate accepted by most authorities. Now, rigorous scientific analysis has pushed the terrestrial calendar so far back that the Earth's beginning must have been at least 4,000 million years ago.

But the problem of dating all the past periods of pre-history is not a simple one to be solved by a scientific incantation and the wave of a Geiger counter; geochronology, the dating of the Earth's past, depends on the ingenuity of scientists in constructing overlapping and independent time-scales going back thousands of millions of years, each time-scale relying on some basic physical principle. Not one single method is suitable to cover the whole of the vast time span, so enormous that, if to represent

one year a second could be ticked off, it would take 126 years before the count would be complete.

Recorded history goes back only to 2238 B.C., when an eclipse of the Sun was an event noteworthy enough to be recorded by the priests of Ur. Prior to this we must rely on indirect evidence based on the natural cycles of atoms, the Earth and the Sun—evidence entombed in trees, rocks and bones. The chronological order of rocks and bones is not difficult to chart—old rocks lie under the newer, whilst fossil remains increase in complexity as the present is approached—the snag came when attempts were made to fix their absolute age in terms of years.

When the total age of the Earth was unknown, it was little use even to guess that sedimentary rocks halfway above unweathered igneous rocks were half as old as the lowest. One of the first reasonably scientific guestimates, made fifty years ago, was an attempt at the age of the oceans, computed by comparing the amount of salt now being carried down by rivers with the total quantity of salt in the seas. Scientists differ in their calculated figures, but these are approximately 40,000 million million tons of salt dissolved in sea water, whilst 400 million tons are washed out of the soil each year. This gives the fantastically small Earth-age of 100 million years.

At the time it was not realized that two large errors made the results hopelessly variable. Erosion of the continents is now going on at a far greater rate than at most other geological periods, and most of the salt being dissolved from the land is salt trapped in sediments laid down in sea water. Together, these mean an error of at least 1,500 per cent.

Similarly, an attempt by Lord Kelvin to calculate the total age of the Earth from the heat slowly diffusing from the centre was based on the completely wrong assumption that the Earth was once a completely molten ball that slowly cooled to its present state. Too, he knew nothing of the vast energy pouring forth from radio-actives splintering far beneath the surface, energy capable of melting the core as well as sustaining its temperature. These fatal flaws made

his timing—40 million years from a fiery birth to now—hopelessly inaccurate.

By this time Darwin had developed his theory of evolution and, knowing nothing yet of mutations, evolutionists were imperiously demanding hundreds of millions of years to explain the slow adaption and increase in the complexity of life.

Then came the discovery of radioactivity and scientific thinking underwent profound changes almost overnight. Lord Kelvin's calculations were tossed overboard and, with the realization that all rocks are slightly active and that the activity very slowly decreases with age, B. Boltwood proposed that radioactivity should form the basis of a billion-year calendar. His brilliant and revolutionary idea used the unchanging rate of dying atoms torn from a novæd star to chart the unknown past of humanity.

Practice, as usual, was not as simple as theory. Whilst the radioactive decay of elements such as uranium is unaffected by heat, light, pressure or chemical action, there are many pitfalls for the unwary geochronologist. Normal uranium-238 decays to give lead and helium gas, taking 4,560 million years, the half-life, for fifty per cent. of the uranium to be changed to lead. Thus it should be possible to date accurately any mineral by measuring the amount of uranium and lead in it, and then cross-check the answer by measuring the volume of helium gas.

Nothing could be simpler or further from practice.

During the decay of uranium-238 the material goes through a series of changes. The seventh member of the series is radon, a gas able to seep through porous rock and so be lost into the air. Helium also can escape from porous rocks. Early attempts to date Swedish shales containing trilobite fossils failed for these reasons and the method is now restricted to non-porous rocks such as granite and pitchblende, in consequence eliminating most sedimentary deposits, the very rocks where most clues to the world's age are to be found.

Another error is due to lead being carried in solution in



molten volcanic rocks and crystallizing with them, thus giving them an apparently greater age than in reality.

Two other radioactive series, beginning with uranium-235 and thorium, also decay to give lead and helium. Fortunately, these leads have different atomic weights, 208 and 207, from the lead-206 produced from uranium-238, and analysis of the amounts of each present can be carried out using a mass spectrometer.

So, by carefully selecting the type of rock employed, by meticulous isotopic analysis, it is possible to correct for most of the errors—which is just as well, for our knowledge of radioactive decay is as yet the only known method of dating the distant past that will satisfy the stringent requirements of modern science.

When the first datings of very ancient rocks were carried out, the results were astonishing—the accepted age of the Earth was suddenly multiplied by a factor of twenty, this later being raised to forty as older rocks still were discovered and the methods of analysis improved. As early ideas went crashing, evolutionists and geologists were happier with the enormously expanded time-scale explaining the observations they had been accumulating.

The problem then became that of finding the oldest igneous rocks on Earth, preferably those with a high uranium content. Ore from Karelia, U.S.S.R., assayed at 1,852 million years and was an intrusion into a still older rock. Another from Huron Claim, Manitoba, had an age of 1,988 million years. A further sample from Manitoba was 2,100 million years old. From Rhodesia came a sample 3,300 million years old. But probably still older rocks are awaiting discovery below the surface of the Earth.

A more recent radioactive method, which, although limited to a small range of ores, promises to be of great value, utilises the element rubidium. Although rubidium is a reactive metal similar to sodium, its salts are extremely stable. Rubidium is a mixture of two isotopes, one of them being radioactive with a half-life of 60,000 million years, over twelve times as long as uranium. The rubidium decays

to strontium, and, providing there is no strontium originally present in the ore, its age can be very accurately determined. So far, the oldest rock of this type comes from Kubuta, in Swaziland, and crystallized 2,100 million years ago.

The fixing of the age of each geological era and its sub divisions of periods and epochs is far more difficult, for, usually, the radioactive deposits are not associated with fossils. However, one deposit of pitchblende and a thorium mineral 200 million years old were found with fossils known only to exist at the end of the Palæozoic Era, and another deposit of pitchblende was connected with fossil remains from the end of the Mesozoic Era, seventy million years ago. These dates form the basis of the time-chart used by palæontologists, the periods being expanded or compressed to fit. The finer details of the epochs were filled in using cruder methods than radioactive dating, usually by comparing the thickness of sedimentary deposits or the time taken for new species to evolve.

From physics, palæontologists then turned to chemistry for more information on the age of their fossil finds. Unfortunately, fossil bones are not stamped with the date of manufacture, and their age is usually estimated from that of the geological strata in which they are found. But if some constant, unceasing change in the bones themselves could be measured and checked against a standard, it would be almost as good as a date stamp.

The first clue came when a check of the literature showed that there is more fluorine in fossil elephant tusks than in new ivory. Then it was discovered that the phosphorus and calcium in bone very slowly absorb the traces of fluorine in ground water, and not long after World War II anthropologist Dr. Kenneth Oakley used this fact as a method of comparing the ages of bones.

This new method had to be used with discretion. The amount of fluorine absorbed depends on the amount in the water, thus it can only be used for fossils from the same bed. Its particular use is in connecting the antiquity of fossil human bones with that of prehistoric animals whose place on the chart of the past has been fairly accurately dated.

Used in this way, the method showed that the Galley Hill skeleton was a recent intrusive burial and that the Swanscombe skull is the oldest cranium fragment so far found in Europe. Then, in 1952, it was used to show that the "Piltdown Man" fossil had less than a tenth of the age previously assigned to it. Its triumph came in 1953 when analysis of the Piltdown jaw bone demonstrated beyond doubt that it was an ape-jaw deliberately stained to match the older brain-case.

Still, there was no method of filling in the odd millions of years between the few fixed dates. Arduous methods such as counting the layers of sediment, known as varves, one formed each year by the melting of ice or flood-flow of rivers, had to be adopted. This method can, in special cases, trace back a complete chronicle of the weather, and of the pollen, plants and insects trapped in the varves. But the vast ancient beds have still not been accurately dated. Seven hundred thousand varves have been counted in one deposit, and some beds are estimated to be thirty-eight miles thick.

The eleven-year sunspot cycle shows up clearly in the deposits, as sunspots alter the amount of heat and, consequently, the rainfall on Earth. Even 800 million years ago the eleven-year cycle can be plainly seen in the varying thicknesses of the varves, whilst the 21,000-year cycle of the precession of the equinoxes is also obvious.

Dendochronology, the counting of tree-rings, can be used to date trees, charcoal and timbers as well as telling the story of the sunspot cycle and the climate of the past—the wetter the summer the thicker the ring. Using a giant California Sequoia, this tree calendar has been extended back 3,250 years.

Then, eight years ago, another chemist, Dr. Willard Libby, came up with a revolutionary idea capable of dating practically any bone, wood or organic matter less than 40,000 years old. Using the radiocarbon—carbon-14—content of living organisms as its standard, this method will date a scrap of charcoal from the fires of prehistoric man, a tree pushed over by an advancing glacier or a spear shaft hurled by a warrior of a long-dead race.

The story of radiocarbon begins far out in space and millions of years ago. A star supernovæd, exploding its surface as driven wisps of gas into the interstellar void. Tangled lines of magnetic force accelerated the gaseous particles as cosmic rays until they approached the speed of light, curving across the Galaxy until some collided with the Earth. With the incredible energy gained over æons of time they smashed through the upper layers of Earth's atmosphere to collide with atoms of nitrogen nine miles above the surface. The energy converted the nitrogen into radiocarbon with a half-life of 5,700 years.

A mere eighty-one tons of radiocarbon are spread over and in the Earth, remaining at that figure, constantly disintegrating and being replenished by new cosmic ray alchemy. Added to this constant figure of natural radiocarbon is that produced by man in his atomic power stations. Combining with the oxygen of the air, the naturally formed radiocarbon makes up one part in a million million of all the carbon dioxide—the breath of life of plants. Absorbed by them during photosynthesis, this radiocarbon is passed on to all living creatures. All animal life on Earth is slightly radioactive. As soon as an animal dies there can be no further replenishment of the radiocarbon in the body and the radioactivity gradually declines. The radioactivity remaining in the body is then a measure of the time elapsed since death.

At present the dating limit is set at 25,000 years by the difficulty in accurately measuring the residual activity against the powerful background of continuous cosmic rays, but plans for bigger and better shields and Geiger counters should extend the limit to 40,000 years. At Chicago University, the apparatus clicking off the past is a bundle of eleven Geiger tubes arranged round an eight-inch diameter tube in which the carbon from the sample is placed. Eight inch-thick steel slabs packed around the apparatus cut cosmic ray hits from 500 to 100, and the eleven tubes cut it further to five hits. These five standard clicks are then subtracted from the number of clicks given off by the radiocarbon—the difference is small; samples registering only

ten hits mean that five clicks only are due to the radio-carbon. Noise level presents a tough problem.

Through this counter go the strangest collection of treasures from distant times and places. A piece of the Dead Sea scrolls. From a tomb of the first Egyptian dynasty a beam of wood. Charcoal from the cave fires of the Lascaux paintings, found to be 15,516 years old. Ten thousand four hundred and fifty-five-year-old dung of the giant sloth. A store of sandals, stitched 9,053 years ago. And, from mud left behind by the last glacier in Ireland, we know that the ice receded there 11,787 years past.

This shows at once that the last ice-age in both America and Europe was a mere 11,000 years ago, instead of the previously accepted figure of 25,000 years. Great and many were the re-orientations in theory and speculation when this method was adopted of fixing accurately to within a plus or minus error of 180 years some of the crucial events of the past.

Until a practical time machine is built it is to this work of the geochronologists that we must look for a true understanding of the immense past stretching from eternity to the present—a time span so huge that man's lifetime is but a momentary flicker against the slow heart-beats of Universe, the births and deaths of stars and galaxies.

## COMMENCING NEXT MONTH!

Someone, somewhere, is at this moment working on a means to grant immortality to the human race. When he perfects his discovery he will be faced with the necessity of making a decision. Should he reserve it for the favoured few? Should he retain it for his own, personal use? Or should he announce his discovery to the world.

And if he does, then just what will happen?

## DEAD WEIGHT by DOUGLAS WEST

Supplies an answer in a coldly logical examination of a near-future society which has banished natural death. This book-length serial probes deep into the inevitable results of such a discovery with conclusions which will shock and surprise you. Don't miss it!

# Plague Solution

by PHILIP E. HIGH

*THE PLANET WAS A VICIOUS HELL OF NIGHTMARE  
DANGERS. AND YET IT HAD TO BE TAMED FOR THE  
REFUGEES FROM DYING EARTH. HOW?*

LESSING EXTENDED THE METAL TRAP OVER THE TEST PIT AND flicked the release switch. The thalk dropped the four feet to the floor with a dull plop. It lay still for some three minutes like an iridescent pancake, as if dazed. Then it shivered, slowly it drew itself into its characteristic vase-like shape. Twin, bright orange tendrils grew from the top and waved slowly to and fro like antennæ.

"One plant in a pot," said Lessing. "Typical life form. Who the hell called this planet The Haven?"

"No one," said Nealer sharply. "It just happened to be the nearest we could live on."

"You kidding?" Lessing's voice was bitter.

"We're alive aren't we? We've built a city of sorts, we're holding our own— Get on with the experiment."

"Sure, sure. What shall we try, the dog?"

Nealer nodded. "Spring the trap."

Lessing pressed a switch and the dog slunk in snarling. It was a big animal and the genetic people had given it a length of fang and breadth of shoulder which made it far deadlier than its wolf forebears. It circled the pit, snarling and showing its teeth.

The thalk quivered, the orange tendrils waved to and fro.

Nealer watched with a sick feeling inside as the animal made frantic efforts to climb up the wall. "Let it out, Lessing, let it out." He turned away as the animal leapt frantically for the open trap.

Lessing lit a cigarette with a hand that trembled. "Mutated dog, go for a lion! I shot it full of agra-benzedrine, too. We hope to raise cattle here—God!" He scowled at the thalk.

"It doesn't sting, doesn't bite, the bio-chemists swear it isn't poisonous. What do you think it does? Give off some sort of sound?"

Nealer shook his head. "I had sonics check that—nothing."

"We can only conclude, then, that the dog is frightened because the life form with which it is confronted is wholly alien. It can find no parallel in its inherited racial memories."

Nealer watched the thalk grow four spidery legs and mince over to the exit trap where the dog had vanished. "Horrible thing." He shuddered. "I'm inclined to agree with your theory but it won't satisfy Camber."

"Nothing," said Lessing wearily, "satisfies Camber. Camber wants results; theories are not results. He'll fry us——"

Camber banged his fist into the palm of his hand. "Theories, theories. I'm tired of men who come to me with theories; they *do* nothing, *produce* nothing." His large heavy face was flushed and scowling. "The thalk is as common on this planet as the London sparrow on Earth, yet every animal we managed to bring with us has hysteria as soon as it gets within a hundred feet of one." He frowned at the uncomfortable scientists. "You think I'm hard. It's not one problem I'm faced with, it's a thousand—a hundred thousand. If we could beat the thalk we could try on the goats on the jungle, perhaps some of the cattle. We've got to clear that jungle for crops, city building, Earth plants. We're over-crowded on this damn plateau as it is, and we can't get off it because of the thalk and the jungle. Theories won't clear the hundreds of square miles I'll need. I've got to have facts I can use. Beat the thalk or mutate the livestock to beat it."

"We can't survive down there ourselves yet," said Lessing, with sudden bitter defiance. "Not without a protective suit and enough side arms to challenge a small army. Go to the edge of the plateau and take a look. It makes the most ferocious jungles on Earth look like rest homes for the sick and aged."

Camber's scowl darkened, then his face slowly cleared. "At least, you've got spirit. You're the first man who has stood up to me since this business started. I want fighters, not 'yes men.' Come over here and see it from my point of view." He gestured to the window. It was a circular window and its origin was obvious; the observation port of a starship.

"New City, take a good look, fifty thousand people crowded onto a single plateau. Look and think about it."

Lessing stared through the window at what looked like a shanty town. Squat buildings, constructed of local rock; prefabricated hutments and parts of adapted starships. Here and there was the glittering pinnacle effect of the few great vessels which had made the perfect tail landing.

He frowned. They called it a city but it was a jungle in itself, a hobo jungle, glittering and hazy in a temperature which never dropped below eighty-five degrees Fahrenheit. The only asset to the plateau was its height; the jungle didn't reach up this far.

Lessing found himself shivering. Man had not been ready for colonisation on a galactic scale and the stellar motor was only twenty years old. A race didn't have any choice, however, when its sun was going to nova within a hundred years.

The idea that deep space was filled with habitable worlds was an exploded myth; habitable for some life forms, perhaps, but not man. New Earth was the nearest. You could live on it, stand its gravity and breathe its atmosphere, but there the resemblance ended. New Earth, a journey of nine years even with the stellar motor.

Camber clapped him suddenly on the back. "Look at it from my point of view. In five years, the first contingents will begin to arrive, not picked personnel and specialists like ourselves, but ordinary people, used to civilized amenities. Clerks, janitors, dirt farmers, John Does with their wives and children. Where am I going to put them, Lessing, if we can't beat that jungle? I can use the converters for basic feeding for a time, but how long will they go for that mush? I appear hard, I act hard, I've got to. An entire race depends



on my efforts to make an alien world reasonably liveable. To do that I've got to push and punch and order around. I even have the authority to execute if orders are deliberately defied. I was trained for this job. I've not only got to do it—I am going to do it." He laid his hand suddenly on Lessing's shoulder and stared into his face. "You're going to help me beat that jungle, aren't you, Lessing?"

Lessing nodded alertly: "Yes, sir."

"Good, good." Camber's grip tightened on his shoulder. "I'm relying on you, man, you won't let me down."

Lessing left the room trying to shake off the effect of Camber's personality. It was compellingly hypnotic and, in its way, frightening. People like that had been sent to psychiatric centres on Earth for at least two hundred years at the first sign of personality warp. The psychologically maladjusted, men with a paranoic hunger for power. Such men, in the past, had led armies, instigated wars, become dictators. Now, in the crisis of evacuation, they'd taken a man and psyched him out of balance to become a ruthless and unprincipled leader. Camber was a dangerous man, but only a dangerous and fanatical leader could do a job like this.

As he left the building, the old fashioned sirens began wailing all over the plateau and he found himself sprinting for the nearest observation room.

The observation screens showed the contact operator and the radar screens in front of him. A starship had been contacted.

"Asiatic, ninety-seven. We have you on the screens, give your call sign, please." The operator's voice was impersonal.

"We hear you, Ground Control. Call sign, six. Radar readings, orbit six. Directions, please."

Asiatic ninety-seven was a stellar freighter, one of the essential supply ships preceding the great evacuation.

Once she came out of orbit and visible on screen two it became apparent that, if she made the plateau, it was going to be a miracle. The turn-over was made perfectly but the braking fire was gusty and erratic.

"Correct nine degrees, correct nine degrees. Power

sixteen on tubes eight and twelve." The ground control operator's voice was no longer impersonal; it was taut with strain. "Correct list, correct list. You are listing five degrees, boost number twelve to maximum and correct, boost to maximum."

Lessing felt his nails bite deeply into the palms of his hands and sweat run slowly down his face.

"Boost, boost—— God!"

On the screen they saw the great ship tilt, wobble uncertainly. The pilot made frantic efforts to correct, blue-white radiance gushed thunderously from the stern, but it was too late. No known power could bring the two-thousand-foot vessel back from the angle she had reached. She thundered over the plateau, shaking the air and heading downwards.

Lessing closed his eyes. Waited.

The ground lurched suddenly, small objects fell from shelves and clattered to the floor. There was an enormous detonation. Dust and wind rushed in at the door and swirled round the room. The whole planet seemed to echo and re-echo from the impact.

Lessing opened his eyes slowly. The automatic tracker of the vision screen had kept the ship in view until the end. Far out in the jungle a vast pillar of black smoke and floating debris crawled slowly skywards.

Lessing crouched over the desk staring, red-eyed, into the reader. The Pathfinders had brought a pre-loading index with them and there might have been something on Asiatic ninety-seven which could have helped him. Not that he had much hope, but it eased his mind and helped out "Records," who were under-staffed.

He fed in the micro-tapes and studied the printed lists until he was dizzy. Farm implements, a comprehensive list of spares, including individual nuts of various sizes. Medical instruments, classified, but without index—— He had been at the job two days. He had to, he just couldn't think any more. His brain felt as heavy and as solid as if he had been without sleep for a week. Perhaps there was something in

the lists which would give him a new angle; some fresh approach which hadn't been tried.

The tape came to an end and he inserted another, wearily. "*Plants. Type C.*"—Hell, fat lot of chance a plant stood on this world. They'd be eaten down to nothing before the cultivation people could get them into the ground.

He lit a cigarette and coughed. The synthetic tobacco substitute from the converters was harsh and clawed unpleasantly at the throat. He inhaled defiantly and continued to study the printed lists unrolling on the reader before him. *Container 17: Life forms, Type C.9 . . .* Trust the dopes to put it in Latin. God, what did they imagine this planet was like, a public park? Butterflies! He scowled at the reader, recognizing only an occasional word, then he sprang to his feet suddenly. He had something; this was a new angle altogether, one they'd never thought about. He had it because some obscure committee back home had included a container marked; "Life Forms, Terran, for the Preservation of."

He pushed back the chair then went limp. No dice. What he wanted had been blasted to fragments in Asiatic ninety-seven—or had it? When Pacific fifty-three had taken off a hundred and eighty feet of mountain top, some things had been salvaged. The difference was, of course, that Pacific fifty-three had ended up on a mountain range and had been salvaged by 'copter units, whereas this ship had gone down in the jungle where 'copters couldn't help. In fact, Lessing faced it, where Camber wouldn't let 'copters be risked. Perhaps Camber was right; things flew over the jungle which could smash the rotors right off.

Hell! He ground out the butt of his cigarette and lit another. It would mean an armed party and he didn't think Camber would authorize an armed party.

Camber wouldn't. "No, Lessing, I just can't risk it. All the men here are specialists. I need every damn one. The loss of two or three key men on a wild goose chase might endanger the whole project. I know jungle clearance has priority, but I cannot risk other vital projects on so slender a chance. You

see that?" He looked into Lessing's face. "You must see it, man. It's a wild chance at most."

"Yes, sir." Lessing sounded beaten.

Camber nodded briefly. "I'm sorry, very sorry, but I can't risk valuable lives. You, more than anyone, know what that jungle is like."

"If I only had one man," said Lessing desperately. "One man to cover me while I do the work and help me back with the stuff. If the containers survived the crash—they've a radioactive tag—I could find them with a search detector inside two hours."

Camber began to stride up and down. "It's a wild hope, isn't it? They may be in pieces when you find them—if you find them. The idea may be a complete failure when you get back—if you get back."

Lessing said, helplessly: "I know. I just felt I had to try."

Camber frowned. "I can't spare Nealer, he's working on that cattle mutation project. Look." He stopped pacing and faced Lessing, frowning. "I can spare you an astrogator. He's no use to us here, directly, sole survivor of Pacific fifty-three. If he's willing, I'm prepared to let him come with you. He must be willing, mind you, a volunteer. Unfortunately I cannot send a man on such an errand without his voluntary consent. Even I have to account to a committee for steps taken." He moved to his desk and snapped a switch. "Call records, get me the file on Morris, Astrogator, First Class."

Morris proved to be a squat dark man with a low forehead and a dumb look, belied by an astonishingly high I.Q. on his psychiatric sheet.

"Yeah, sure," he said. "I'll go. I'm getting the meemies stooging around here, everyone looking at me as if I was in the way." He grinned. "Guess I am, too. What the hell can you do with a grounded astrogator?"

Lessing said: "You've got about one chance in eighty of coming out of this alive. Still want to come?"

"Want to bet? I play for high stakes."

Lessing found himself liking the man. "Use a heat gun?"

"As well as I use a computer. What else?"

Lessing grinned. "I guess you'll do, but don't get ideas. The 'copters won't take us, we get there on our feet. Know what you're in for?"

The other's face was suddenly serious. "I've had a lot of spare time, mister, and I've used it getting close-ups of that jungle through the electro-binoculars."

Lessing held out his hand. "We'll get along."

There was a long, uneven, natural path leading down from the plateau to the flat lands below, flat lands in constant and ferocious motion.

"I didn't like the way those guys wished us luck back there," said Morris as they walked down the path. "It was kind of sonorous, like their mouths were full of memorial cards. I should have laid bets."

"Who'd collect, and from where, if you lost?"

"You've got a point there. By the way, anything I ought to know?"

Lessing wiped sweat from his face. "I'll point out the major menaces, if I can, as we go along." He turned the control of the built-in frig unit another two degrees but continued to sweat. The protective suits helped, but they were not fool-proof; further, they were too heavy. Like most of the equipment on New Earth, they were make-shift, originally they had been spacesuits.

He pointed to the jungle. "One day, I suppose, they'll have everything neatly classified down there, complete to Latin tags to confuse the student. In the meantime we use our own tags. Some of them are pretty expressive, they have to be. If someone yells 'Panzer Apple!' everyone knows what particular menace is coming at them and acts accordingly."

"Sounds enthralling," said Morris in a dry voice. Something clanged on his armour and went shrilling into the sky. "What was that?"

"Just a jet bug. Actually it's a seed which manufactures its own gas propellant and expels it through orifices in the tail.

You'd better close your face visor from now on and switch in the intercom. Those things can go right through you."

They trudged on. The sun beat on the rocks and the air shimmered and danced in the heat, forming water mirages among the rocks.

"What I can't understand," said Morris, "is why you didn't do the obvious thing. Bring down a few incendiary projectors and just cook clear a few miles."

"We did, twice. The jungle was back inside half an hour. You see, nothing on this planet 'grows' as it grows on Earth. It's mobile. Plants that run, hop, walk and fly. The whole damn lot came tumbling back like a wave as soon as the ground cooled." He paused. "It may be hard to believe, but this planet doesn't have any animal life. No tigers, no birds, not even a snake; everything, including the thalk, is strictly flora. To an ecologist that doesn't make sense but it's here so I have to accept it. We figure life first evolved in the swamps, vertebræ creatures may have evolved in the oceans but never came out."

Morris scowled in front of him. "Maybe it didn't have the nerve; can't say I blame it."

"Yes, it's tough down there, nothing ever achieves full maturity. It's eaten alive before it reaches the equivalent of middle age. A life form must grow and procreate in the shortest possible time. Right now, it's a struggle between plants trying to gain ascendancy over others via mobility and ferocity versus ditto striving to the same end via prolific seeding. So far, honours are about even."

They walked on for a quarter of a mile and Lessing made a detour over some uneven boulders.

"I suppose you like the exercise," said Morris in an uncomplaining voice. "Just restoring the circulation."

Lessing stopped and pointed. "See that thing across the path? It isn't two green carpets joined by a narrow orange one, although it may look like it. It's a Cabbage-Clam. Watch." He found a small stone and tossed it in the direction of the plant. The two "carpets" rose upwards and came together with a frightening snap.

Morris said: "God!" in a thick voice. "It could have squashed me flat and had me for supper."

"Just squashed you flat. None of these things can eat animal life until it reaches an advanced stage of decomposition."

"Fat consolation that is," said Morris, scowling.

Slowly the path was giving way to the jungle. There were squat, fat-leaved trees, cactus-like plants, a multitude of blossoms, vines, and constant movement.

A shrub-like growth withdrew its roots hastily as they approached and scuttled out of their way.

Lessing eased the heat gun out of its holster and flicked off the safety catch. "You'd better get behind me, slightly to the right; gives us a better field of fire. Don't shoot until you have to, and don't shoot too much. I know these things draw their power from solar energy and are inexhaustible, but the barrels can soften. A lot of guys have gone up in a puff of vapour because they forgot that." He fired suddenly at something ahead. There was a brief flash and a puff of vapour.

"What the hell was that? I never saw it." Morris peered worriedly about him.

"Spit Melon, squirts acid, could eat through your suit in time."

"If we're not good to eat, what are they picking on us for?" Morris sounded disgruntled.

"Reflex action, protective or aggressive, to anything which moves."

They trudged on cautiously, heat guns ready, through a jungle which devoured itself as it matured. Plants which ate plants which, in turn, were half-eaten themselves before the meal was completed.

An enormous creature with wings like thick tattered sails flew ponderously above them and a swirling cloud of what looked like privet leaves rose up to meet it. The two men saw the cloud cover it, holes appeared in the wings but the creature continued to fly onwards. Slowly it lost height, the wings became membranes which, for a few seconds,

beat frantically and futilely at the air. Then it tipped sideways and fell. There was the sound of rending vegetation, a heavy impact, a frantic thrashing sound which gradually lessened and finally died away.

"Friendly kind of district," said Morris lightly, but his face was pale and his eyes strained.

Ahead of them, a snake-like creature, looking as if it were constructed of yellow billiard balls, looped absurdly but swiftly across their path. There was sudden movement and a sharp snap as a Cabbage-Clam neatly cut the creature in half. For a brief period the two halves continued in the same direction, then, as if by mutual consent, they looped away in different directions.

"I don't believe it," said Morris softly. "I just don't believe it."

"Each segment is an individual plant," said Lessing. "They join up for mobility and protection. It's the nearest thing this planet has to co-operative effort." He stopped suddenly and pointed.

Between two cactus-like plants was a twisted, blackened mass of metal. It might once have been part of a propulsor tube.

"Some impact, but we might be near enough to get a reaction, even a reading." He studied the search-detector and whistled softly. "A reading. The tags survived the crash anyway."

They plodded on, sweating but alert. Vines, terminating in lumps of adhesive goo, sought after them blindly. Innocent pulpy leaves grew sudden barbs and spat them sharply against their armoured suits. Twigs, with twin flapping leaves, danced like Earth butterflies about their heads. Here and there moss-like creatures rose out of their way on tiny rotors, looking as if they belonged in an aquarium rather than in the air.

Lessing studied the detector again. "Another quarter mile, but it's six feet under; have to use the hand digger."

They went on and they shot things. A huge red sphere covered in spikes which Lessing called a "Panzer Apple" and was already rolling ponderously towards them. At things



which crawled on a multiplicity of legs, at brown flying things which swooped, at mobile strangler vines which tried to embrace them.

When they finally succeeded in pin-pointing the container, the spot was covered by a twenty-foot growth covered in eighteen-inch, razor-sharp barbs.

"What do I do, fry it?" Morris raised his heat gun.

"Give it a shot at half power; these barrels won't take much more."

The growth took two shots then withdrew its roots and waddled away.

"Exit Charlie," said Morris.

Lessing grinned faintly. "You say the damndest things. Don't think I could have made it with anyone else."

"Thanks, and save it. We've got to get back yet."

They got back, but staggering and palsied from fatigue. They had the container. It weighed seventy pounds but it was unbroken and the seals were intact.

Back in his quarters, Lessing tottered to the communicator and punched a switch. "Get me Bio-chem."

"Bio-chem here, Cartwright speaking."

"This is Lessing. Get this straight before I start snoring. You've got the container, so you've got the idea as well. I want that stuff worked over, the breeding capacity doubled, development of the intermediate stages cut and build up on size. Oh, yes, and force breed four. I want to try them out on the thalk. Can you do it?"

"Kid's stuff. Think it will work?"

"Solve a lot of problems if it does. Things that eat things that eat each other." He punched the switch.

"What'll they do?" Morris's voice, thick with fatigue, came from the opposite bunk.

"Put 'em in a mutant chamber." Lessing was climbing into his own bunk. "Bombard them with hard radiation; affects the genes, brings about—" His voice trailed away.

Bio-chem delivered a small box six weeks later. Lessing slid back the lid with his thumb and shut it again. "Let's go find the thalk."

"What gave you the idea?" asked Morris as they left.

"Some fool society back home with enough influence to get themselves cargo space. Society for the Continuation and Preservation of Earth Life Forms, or some such title."

They reached the test pit and Lessing slid open the box and tipped the contents to the surface below. "I don't have the nerve to stop and watch. Use a drink?"

Morris brightened. "You got stuff in this hell hole?"

"Strictly against regulations, yes, and then only if you rate it. I figure we do rate it. The techs make it; by-product of the converters, I'm told. It's a horrible brew, but it's got a kick."

It was horrible. Morris sipped and grimaced. "You could have used this on the jungle."

"That's good hooch." The tech. sounded aggrieved. "You're only getting it because you're heroes, see? We don't get enough to share out, besides, it might get around. Camber would have our heads if he knew. Say, while you're here, what gives? The whole damn plateau is packed with little cages, thousands of them. I've even got four on the roof of my sleep hut."

"Military secret," said Lessing without smiling.

When they got back to the test pit three creatures were hopping dolefully about while a fourth was finishing the remains of a spidery black leg.

"Wholly 'fective," said Morris, thickly. "You did it, brother, by God, you did it."

Lessing sat down, shook his head. "Is it right? Maybe intelligent life would have come out of that jungle one day."

"In a couple of million years, maybe."

"That's immaterial. You can't wipe clean a planet and not think about it."

"You're drunk," said Morris. "Drunker than I am. You've developed ethics."

Camber stood on the plateau with them. "These creatures are enormous, Lessing, as big as sparrows." The vision panel in front of him lit suddenly and he adopted a characteristic

pose with his chin raised and his mouth stern. "Today, my friends, we launch the final attack on the jungle." He was speaking to the entire population of New Earth. "An attack that will clear the lands for millions who will soon be joining us here to start a new and vital step in the history of the race. We, the Pathfinders, must continue to labour to make this planet safe for their coming. We have but five short years. When that time is up, the migration begins, twenty, even thirty great ships each week. We know, we shall ensure, that this world shall be a fitting home for them. Is it not an omen that we smite the jungle with a biblical plague?" He paused and raised his arms in a theatrical but curiously impressive gesture. "Release the scourge."

Lessing knew that all over the plateau the breeding cages were being opened, releasing the matured and mutated specimens. He watched them rise like spirals of black smoke, and rising, flow together with a rattle and hiss of wings. The cloud grew, blotting out the sun, throwing a shadow over the plateau. Slowly the cloud descended, great patches of vegetation vanished beneath it.

The jungle writhed and lashed, but it had no real answer. It could not eat in return, and these creatures were tough. The genetic boys had done a magnificent job, they had trebled the creatures' size and their reproductive capacity was prodigious; even in the larval stage they would chew off the roots of anything that grew. No doubt half would be killed but the rest——

Lessing raised the electro binoculars to his eyes and watched half a million locusts eat their way into a jungle which had never known a natural enemy save itself.

Camber looked, too. Slowly he put down the binoculars. "I knew you would find me an answer. A man is not given such responsibility, as I am given, by human powers alone. Sometimes I feel the inspiration, sometimes the guidance. I know I have been chosen to lead my people to safety."

Lessing said nothing. Sooner or later mankind would have to find a solution to Camber. He hoped it would not be as drastic as his own—a plague solution.

# THE SURVIVORS

by A. BERTRAM CHANDLER

*IT WAS A TRAGIC DAY WHEN THEY DISCOVERED  
THE TUNNEL. IT TURNED MYTH INTO REALITY  
AND SHOWED THEM JUST WHAT THEY WERE*

I WAS ON WELFEER'S FARM WHEN HE MADE THE DISCOVERY—and that, I suppose, is why the Council has directed me to write an account of the whole peculiar business for the records. It certainly isn't because I have any specialized scientific knowledge, and I've never pretended to be anything else than a very ordinary newsgatherer with ears no longer than the next man's. However—I was on Welfeer's farm because my Editor had sent me there. Welfeer, like all peasants, was full of grumbles—the current one was that the new ultra violet lamps were doing his carrots no good at all, and could, in fact, be blamed for a rather novel kind of blight that was attacking their roots.

"It's against nature," he complained. "Write that in your paper. In the old days all we had was the good sunlight brought down from the surface by lenses and mirrors—and the crops prospered. Sure—the nights are long, but nature meant 'em to be long. She didn't mean for us to go flying in her face with pretty lights in bottles . . ."

"But these new lights are the same as sunlight," I told him. "And we have to produce more foodstuffs—even with new tunnels being opened up all the time, even with the atmosphere factories working full blast, we're finding it hard to produce the necessities of life for all our people . . ."

"That's all the fault of the doctors," he grumbled. "In

the old days it was much simpler. You got too many people. You got a plague. You started again from scratch, and there wasn't all this fuss and bother of opening new tunnels, manufacturing millions of cubic feet of atmosphere to fill 'em, trying to get the crops to grow by night as well as by day . . . The good old plagues saved us all that bother." He pushed his nose against mine. "D'ye know how many children my mother had, young feller? Thirty-four. And d'ye know how many grew up? One. And d'ye know who that was?"

"I can guess," I said. "Now, this blight of yours . . ."

Rather sulkily, he led me to his carrot patch. I don't know anything about farming, but it seemed to me to be ideally situated. It was in the angle made by two walls and right underneath an air duct. By day it was getting the full benefit of a big solar mirror, and at night it would be right under the beams of one of the big UV projectors lately installed by the lighting technicians. The projectors weren't on now, of course. It was still all of six sleep periods to sunset.

"Look at *this*, young feller!" said Welfeer, pulling a carrot with a flourish.

I looked at it. It seemed to be bigger than normal, but that was all. I took it from his hand, brushed it clean on the fur of my belly. I nibbled it.

"Not bad," I told him. "But I always think that the smaller ones have more flavour . . ."

He snatched the carrot back, studied it carefully, nibbled it himself.

"This is one of the few that are all right," he muttered. "Now, this one . . ."

He bent and tugged. The feathery top of the vegetable came away in his hand. He cursed to himself, started scrabbling in the dirt. He grasped the root with both hands, grunting. I could see the muscles standing out under the fur of his back. His ears wobbled ludicrously.

"It's stuck," he complained.

I got down on my haunches beside him, managed to get one of my hands round the big carrot. We heaved together. Together we fell over backwards, looking at the ragged square of much corroded metal that had come up with the root. I must confess that it was some seconds before the implications of what had happened sank into my mind—and when they did I realized thankfully that we had not heard the thud of emergency airtight doors closing. All that we were hearing was the rattle of loose soil and rubble trickling into what appeared to be a sizeable cave under the carrot patch.

"We've found a new tunnel," I said at last. "And one that doesn't need sealing. I'll see that they name it after you."

"Will they compensate me for my carrot patch?" demanded Welfer.

"I don't know," I said. "I'm not a law talker. Now, if I could borrow your speaking tube . . ."

Grudgingly, he led me into his cave. His wife and at least a dozen children watched me as I puffed into the mouthpiece. I told the girl in the exchange where I was talking from, gave her the number of the paper and the message to Bunloon, the news editor. I hoped that the various operators wouldn't get it hopelessly garbled en route. Then I hung up and squatted down to wait for the reply. Welfer said that *he* couldn't afford to waste time even if other people could, and went outside again. His wife—who had been told who I was—asked if I would be getting the staff artist along to make pictures of herself and all the family.

I was rather relieved when the whistle sounded. The operator passed me a message from Bunloon to the effect that I was to explore the new cave and to report back if I found anything of interest. I sighed. I'd explored new caves

before and all I'd ever got for my pains was a coat full of dust. As far as I was concerned the Giants were just a legend, a myth—and myths don't leave anything substantial behind them.

Still—orders were orders. I asked Welfeer's wife for the loan of a battery lamp and, not very enthusiastically, she let me have one. I went out into the tunnel, found that Welfeer had put a sheet of plastic over the ragged hole in the floor and was busy scraping earth over it. He could not, he said, afford to lose his carrot patch—especially since it was so situated as to receive the maximum benefit from the new lamps. I had to pay him all that I had in my pouch—four deca-units—before he would consent to uncover the hole again.

I looked at the hole. I picked up a pebble, dropped it. The short interval between its release and the sound of its striking told me that my own drop could be made in perfect safety. Even so, I was not too happy about it. People have been suffocated before now by venturing too soon into newly opened caves. Anyhow, I clutched the lamp to my chest and jumped, landing in a little pile of earth and rubble. I breathed deeply, testing the air. It was dry, and had a strange musty smell. But there was no choking, no dizziness. My muscles, that had been tensed for the leap back to safety, relaxed. I switched on the lamp.

I had been quite confident, I remember, that I should see nothing more than a tunnel like the one I had just left. Welfeer told me that I squealed like a girl during her first experience when I put the light on. This *may* be true—what *is* true is that, for the first time in my life, I received a shock of real surprise. You must remember, too, that I had always scoffed at the legends of the Giants. But in one blinding second I knew, I *knew*, that I had stumbled upon a nest of these legendary beings.

There was a table—huge, twice the height of me. There were strange smaller tables set around it—strange inasmuch

as they had a sort of vertical framework along one of their edges. All around the walls of the cave were shelves, and on the shelves were dozens of what I realized could only be books.

I pulled one down from a low shelf. I opened it. The paper was of a remarkably fine quality, the print was exceptionally clear. It was far superior to anything ever turned out on *our* presses—and they're reckoned to be the best in the Burrows. Had these unknown printers, I wondered, used metal type? Then I dismissed the idea as ludicrous. Metal is so scarce that it would never be employed for such relatively unimportant work as printing.

I wished that I could read what was printed on the pages of the book. But they were queer, angular characters, bearing absolutely no relationship to either of our written languages. There were no pictures, only a few diagrams that looked as though they might be of interest to our lighting technicians.

So I put the book back on the shelf, picked up the lamp again and began to explore the rest of the cave. In one corner there was a big globe, mounted so it could be turned on its axis. It was covered with a thick film of dust, which I wiped off with my forearm. It took me some time to make out what it was supposed to represent. There was something familiar about the outlines of the shapes drawn on its surface—then I realized that it was meant to be the Big Ball. But the colours were all wrong. The Big Ball has brown and green and white and blue—but never any red. And whoever had made the globe had not bothered with the drifting, waxing and waning patches of white. Perhaps, I thought, they weren't there when this globe was constructed. Perhaps there were all these big blobs of red and yellow . . .

I heard the noise of voices in the tunnel overhead. Somebody dropped down from above—it was Bunloon. His ears and his whiskers were twitching with excitement.

"You *have* found something!" he cried. "Artifacts!



Luckily I put through a call to Leverell—he's Chief Historian at the Academy—to tell him that we'd found something right up his alley and want an exclusive statement. He won't like this, though. He's never believed in the Giants . . ."

"There's still no proof, master," I said.

"No proof? No proof, you short-eared clod? Look at the size of those tables—only a giant could use them!"

He prowled round the cave, exclaiming over each discovery.

"These books! What paper, and what print! I'd give my ears to be able to read them!"

His enthusiasm soon waned, though, and he called up to Welfeer to throw him down a carrot and, as an afterthought, one for me.

Brannee, our staff artist, was next to arrive. He set up his lamp and his easel, ignored us as he squatted down and began sketching. Bunloon nibbled his carrot. I pulled a few more books down from the shelves, leafed through them. I found nothing that would throw any further light on my discovery.

Bunloon was halfway through his second carrot—obtained only after he had promised to have Brannee make a likeness of the Welfeer family—when Leverell arrived. It was the first time I had met him—although, of course, his name was familiar to me. He sneezed after he had dropped down into the cave and looked with distaste at the dust settling on his thick fur. I couldn't see how it made any difference. His fur was the same colour as the dust and it didn't show. But he soon forgot his annoyance and discomfort as he pulled book after book from the shelves. In a short time he was surrounded by a great pile of them as he squatted happily on the floor.

He was luckier than I had been—or, perhaps, it was some sort of bookman's sixth sense.

"Look!" he called suddenly.

We crowded round him.

He had a book open before him. It was a thick book, with page after page of fine print. And there were pictures, too—cunningly executed they were and splendidly printed. It was one of these drawings that had aroused his interest.

I thought at first that it was a man. But the posture was wrong—the being was not standing erect but was somehow crouched on all fours. The ears were right, and the shape of the face, but the head was far too small. Yet this . . . thing had the little puff of a tail in the right place.

“What do you make of it, historian?” asked Bunloon.

“I can’t say,” he replied. “Yet. But I’ll scratch out a solution . . .” He got to his feet. “I’ve never believed in the Giants, but . . . I have to admit that there’s a tie-up. We’ll assume that the Giants were ancestors of ours—after all, the race is always changing. We’ll assume that this attitude, as pictured, was their normal resting posture. Then they’d have to use those small tables to do any reading or writing at the big table . . . Those upright affairs on the little tables are so they wouldn’t fall off . . .”

“Can I quote you?” asked Bunloon.

“No,” snapped Leverell. “You newsgatherers are all the same—you take a man’s words and twist them and make him the laughing stock of the burrows.”

“Oh, all right,” said Bunloon. “But just remember that you’re to give us first rights on any statement you get around to making.”

It was all of six days—over a hundred and fifty sleep periods—before we heard any further from Leverell. About the only newsworthy thing to come out of my find had been a series of articles dwelling in great and harrowing detail upon the sufferings of Welfeer and his family—he had been evicted from his farm at the behest of the Academy. Our campaign for justice to the dispossessed peasant wasn’t

very successful—usually in these cases the Temple lends its not inconsiderable support; but this time, just for a change, the Academy was working to prove the mystic teachings; had admitted, publicly, that the Giants had, in actual fact, existed.

We were having a quiet spell in the office when our operator whistled up to tell us that she had just received a call from the Academy and that Historian Leverell wanted to see the Editor at once. Bunloon wasn't in—he had gone to inspect a workshop that had claimed to have turned out some new and improved type; made out of bone it was, not plastic. (It crumbled after the third using.) Beveren, Bunloon's number two, was in charge.

"It must be about that story of yours," he said. "You'd better go. After all—you made the find. And see that you come back sober—they make a very potent brand of happy juice at the Academy . . ."

I was rather excited as I scurried out of the office, along the main tunnel. After all, as Beveren had said, it *was* my story. I wanted, very badly, to hear, before anybody else, just what it was that I had found.

The Academy, when I got there, was in a ferment. It was boiling over like a nest of rockborers in a reclaimed tunnel when the air is let in. I had to show my disc a dozen times before I was let through into Leverell's study.

He looked older than when I had seen him last. His fur—what was left of it; he must have been pulling it out by the handful—was much greyer. And he had been drinking; the cave stank of happy juice. He pushed the jug and a goblet towards me.

"Have a good one," he said. "You'll need it."

"What have you found, historian?" I asked.

"What have I found?" he laughed wildly. "I've found enough to shatter all our science—aye, and our religion. This will be a blow from which neither the Academy nor the

Temple will ever recover." He picked up his own goblet. "We're a proud people—and I'm a proud man. I *was* a proud man, I mean. Not any more. Not any longer . . ."

I had my pad and stylus out of my pouch.

"What's the story, historian?"

He walked over to a table. On it, I saw, was the strange globe we had found in the Giants' cave, the oddly-coloured model of the Big Ball.

"To begin with," he said, "*this* is where we came from. Fantastic though it may seem, these—" he touched the blue areas "—are *water*, the rest is earth and rock . . ."

"Historian," I pleaded, "you'd better go and lie down. I promise you that nothing you have ever said will appear in the paper . . ."

He spun the globe on its axis, pointed to the markings shaped like two fat carrots, point to top.

"*There's* where we came from."

"I'm not religious," I protested, "but it's so obvious that we were made for our world and that our world was made for us. I can't believe that we came from the Big Ball. All that *water*."

"But we did.

"Oh, it's been a tough struggle getting any sense out of the Giants' books. Luckily we found other caves behind the one *you* found, and we found machines for storing and releasing sound and other machines that show pictures—pictures that *move*. Our technicians found out how to make them work. I was able to work out what spoken words meant what written words, and I found a few pictures that matched, and . . . And I wish I hadn't . . ."

He pulled a machine out from the corner, threw back the cover from it. He pressed a switch on its side. The whole thing started to whirr and threw a bright light onto the wall. He told me to switch off the lights in the cave.

There was music then, at least, I suppose you could call it music, it had rhythm of a sort. And in the square of light on the white wall of the cave there flashed those odd, stiff etters.

"'To the Moon' . . ." read Leverell.

"The *Moon*?" I asked. "What does that word mean?"

He laughed.

"You're standing on it."

I looked down at my feet—but I couldn't see anything out of the ordinary.

The words were replaced by pictures, and the music by a voice talking. It was deep, that voice, impossibly deep. And, somehow, frightening. The pictures were in colour and they *moved*. They showed a landscape—but it was weird, alien. To begin with there must have been an atmosphere, because there were plants growing. There was grass, and there were great tall things many times the height of a man. But whoever heard of an atmosphere on the *outside* of a world?

Then there was a thing like a huge metal carrot standing on its thick end, towering against the blue sky. A *blue* sky, not black. The plain on which it was standing didn't look too bad, although it was yellow rather than grey and there were no craters.

At first I thought that it was men working around the big metal thing. But they were moving oddly, and when we had a closer view I saw that they had round heads, and horribly flat faces, and no ears to speak of. They didn't have any tails, either, and their fur was far too smooth.

"They are loading the rocket," said Leverell.

"The *rocket*? What's that?"

"That thing shaped like a carrot. Watch."

We saw the strange beings handling boxes and cases. And then we saw some boxes with open, barred fronts. There were living things inside the boxes. I cried out when I saw that they were men and women . . . No, not quite men

and women, but like the picture Leverell had found, the one that we thought was a Giant.

There was a screaming, wailing sound, and all the monsters hurried away from the rocket. Suddenly it started to burn at its thick end, and then it lifted, slowly at first, then faster and faster. In a very short space of time it was only a trail of white smoke in that impossibly blue sky.

Then there was another picture. The sky was black this time, as it should be, and full of stars. Then a great, gleaming wheel swam into view, and beside it was the thing that Leverell had called a "rocket," and another thing that looked like two big globes joined together with girders. The monsters were transferring cases and bundles from the rocket to the globe affair. This scene looked rather more natural—they were wearing suits not unlike the ones that we wear when we have occasion to go Outside.

Then we saw the Big Ball, looking very much as it looks to us, and a smaller globe, half in sunlight and half in shadow, that seemed to be almost touching it.

"What's that little ball?" I asked Leverell. "Why can't we see it now?"

"You're standing on it," he said again. I didn't think that repetition made the joke any funnier.

There, in that picture on the wall, the double globe affair started to gush fire. It dropped away from the gleaming wheel, vanished among the stars.

The next picture was familiar. There was the grey-white plain, and the black shadows, and the crater walls and the Big Ball standing high in the black sky. And there was a flame in the sky, and the double globe came dropping down on its flaring tail. It landed gently, and a couple of dozen of the monsters, wearing Outside-suits, came jumping out from a cave and waved to it. A door opened in the upper globe and a ladder dropped to the ground. More of the monsters climbed down the ladder.

The picture flickered out then and there was only the square of light on the wall.

"Well?" demanded Leverell.

"It's incredible," I said at last. "But the way I see it is this. Those monsters came here, somehow, from the Big Ball, and our forefathers, the Giants, drove them off . . ."

He laughed and poured himself another generous drink.

"Pride of ancestry is a good thing, my boy. I had it—*once*. But you saw our ancestors in those pictures—in those barred boxes . . . They were left here when the monsters were recalled to their own world—the Big Ball. I can't make out what it was all about. They were burning each other's burrows—but that seems insane . . ."

I agreed.

"But what did they bring us—our ancestors, I mean—here for?"

"They brought the plants as well—to purify the air in their burrows, and for food . . ."

"But our ancestors?"

"It was . . . sickening," he muttered. "A man, or a woman, was no more to them than a lettuce or carrot is to us. They were . . . monsters . . ."

He staggered and fell against the picture projector. It went over with a crash. Stupidly, still holding the jug of happy juice, he bent over and tried to right it, spilling the drink. The liquor must have been almost pure alcohol, and the machine was hot.

I tried to save him, but the flames drove me back. As you know, all his notes were destroyed, and the monsters' machines and most of their books. All we know of our inglorious past is what he told me before his death.

The last words that he screamed still haunt me. They were, I am sure, in the same language as that used by the talker with the living pictures.

*Roast rabbit . . .*

# The Evolution of Man

by

KENNETH JOHNS

## Part 5—THE HERALDS OF MAN

**W**ITHIN THE LAST MILLION YEARS, EVOLUTION HAS raised man to the apex of mammalian life. A million years from animal to intelligence is a fantastically short time contrasted with the multi-million year story of life on Earth; a mere minute in which a New Brain grew to control and guide the Old Brain and Body and so give man, the newcomer, his emotional character and his ascendancy over his environment. But not one of the greatest philosophers of the human race can tell what the next million years holds for *Homo Sapiens*. Even now, after half a century of searching, we are only beginning to learn the *causes* of the gradual increase in the intellect of most mammals that has reached its present peak in modern man.

One hundred million years ago, when the rest of the mammals were off on the evolutionary race, sprouting horns and fangs, developing claws and hooves, one branch, the Primates, hung fire. They were the backward children of the mammals. The first Primates must have been tiny, unspecialized animals seeking safety and their insect food among the forest giants, undreaming that this retardation of development, plus the acquisition of a number of features unique to life so far on this planet, would establish their descendants as Lords of Creation when Brain overcame brawn.

They scampered among the branches, watching the decline and fall of the dinosaurs. One typical feature of all primates was already present, the grasping feet and hands



essential for a successful arboreal life. We have no fossil, living or dead, of this first primate; but we know it must have been not unlike the tree-shrew of today—small, agile, snout-faced and with a bushy tail. In the trees they found safety from the fleet, four-legged carnivores of the ground, and up among the high branches the vagaries of the wind made ears and nose ineffective. In time, eyes became the most efficient sensory instruments.

The early types evolved into the teddy-bear like lemurs, slowly losing their snouts and, as their eyes gradually migrated to the front of their heads, they developed stereoscopic vision to cope with their aerial world. The analysis of the complicated messages from their efficient eyes demanded a more complex brain. They developed nails instead of claws and hooves. They had the trick of opposing their thumb and big toe against their other fingers. It took a smarter animal to live in the trees than to live in the swamps. There were birds' eggs to be broken open and nuts to be cracked and peeled. Circumstances were preparing the Primates for their great opportunity and when it came they were ready to take it.

The primate group is classified solely by anatomical similarities, but it is mainly amongst the primates that are found the mental qualities of curiosity and acquisitiveness—two features particularly noticeable in *Homo sapiens*.

The Tertiary Period is divided into five Epochs, beginning with the Palæocene, opening seventy million years ago. During the Palæocene the little shrew-like Primates spread out abundantly and gave rise to the lemurs of the next epoch, the Eocene, sixty million years ago. With the close of this epoch came the end of these early Primates, ousted by later rodents and by their own descendants, the higher primates, the tarsiers, approaching towards the ape-form. The only modern tarsiers left are wide-eyed, nocturnal creatures, driven into the night by the rapidly evolving monkeys.

The fossil picture here is reasonably good, although it fades out frustratingly at critical junctures. The oldest known Primate fossils are teeth and scraps of bone from

Europe and North America, dating from the Palæocene and the Eocene. The earliest monkey fossils are about forty-five million years old, reminders that the monkeys were the first group to branch out from the main Primate line leading to man and to evolve successfully separately.

Continuously, throughout the record of fossil remains, there crops up the question of whether or not one particular fossil belongs to a creature directly ancestral to man. After the monkeys diverged, other groups followed, and one of the main problems confronting palæontologists today is to decide how and when the branching occurred and of distinguishing parallel fossil remains from those on the main evolutionary line leading up to *Homo sapiens*. There were very many sidelines, branches that were very close; but that did not quite measure up to the demands of the evolving world and so died out. The European lemur, *Adapis*, and the American *Notharctus* from the Eocene are among the earliest Primate fossils known, and are probably ancestral to the apes and monkeys that branched off in the Oligocene, the next period, forty-five million years ago.

Two early fossils about forty million years old show that the change from the tarsier-like stock to apes was progressing in Egypt. *Parapithecus* was the earliest, a small, omnivorous predecessor of apes and man, probably developing into *Propliopithecus*, a larger, gibbon-like creature.

From the main line of human evolution, beginning with the first Primates in the mists of the past until the rise of modern man, other branches of the Primate family sprang. First the New World monkeys split off, then the Old World monkeys, followed by the various types of ape. Each branch evolved separately, developing particular attributes to suit its needs. Only the New World monkeys swing by their tails and the hands of man are far less specialized than those of apes, whilst the little tarsiers, forced into the night and forgotten, developed huge, staring, spectral eyes.

By thirty-five million years ago the anthropoid apes had branched out and were expanding over Africa, still their main home, and were beginning to migrate across Asia.

Of the three types of ape that then existed, Proconsul is thought by many scientists to have been one of our ancestors, whilst it is probable that Dryopithecus was already well on the way towards the modern apes.

With the gradual increase in size, emphasis was placed on brachiation, the ability to swing from branch to branch by the hands, rather than on a mode of progression depending on hopping or running, so the Primates developed their peculiar wrist and shoulder structure, a gripping hand and powerful arms and shoulder muscles. Occasionally they did come down to the forest floor, to stand half erect and shamble a few hesitant, bipedal steps; but they were faster on four limbs still, and the lack of specialized leg muscles, coupled with their long pelvises, made standing upright a distinct strain.

From one million to 50,000 years ago lies the critical part of man's evolution. All the higher Primates had the advantages of stereoscopic vision, agility of a growing brain, grasping hands, the re-arrangement of their internal organs to adapt them to an upright stance. But only man took the next step.

The mutation that was to mean the difference between stasis and the gaining of a planet was in the pelvis, the bone structure supporting spinal column and abdomen, and providing the hip-bones as a juncture for the legs. The pelvis shortened, twisted and grew broader, enabling the apes to stand upright and walk erect, whilst continuing evolution favoured a gradual increase in the vertical position of the pelvis to help the birth of young. Bipedal walking freed the hands for mechanical investigation.

Unfortunately, only a few handfuls of fossil bones and fragments have so far been found to tell of the growth of mankind. It is a fact that the fossil picture for the primates is nowhere near as complete as that for other animals—one might almost say: "By definition."

Bones become fossilised only under very special circumstances and such were the intelligence and living areas and habits of early man-like creatures that few were unfortunate enough to die in circumstances where their bones would

become preserved for us. Death by drowning, an excellent beginning for a fossil, was rare amongst an arboreal people, whilst the organic acids from rotting vegetation on the forest floor soon destroyed all flesh and bone. Man's forebears were never very prolific; they could probably be counted in a few thousands at any one time, and, statistically, there was little chance of their bones surviving amidst planet-changing and geological crises.

Thus we have only meagre evidence from the critical evolutionary period. Pieces of jaw bone, a tooth, a cranial fragment—the finds are widely situated over the globe, in England, France, Africa, Java and China, mutely telling the story of the wandering habits of our forebears.

The million-year evolutionary period is an exceptionally short time for the Primates to evolve from bird-nesting, nut-cracking, insect-hunting animals to humans taming the atom and ready to reach for the stars. Yet this million-year period is many times greater than the time allowed in the thundered religious dogmas that took the genius of Darwin and his associates to overcome and explain.

Darwin, in his flash of genius and the painstaking work that followed, however, saw only part of the truth—the remainder has been pieced together little by little from the few fossils we have and ingenious deduction from the bodies of animals and man. It is like a jig-saw puzzle made up of pieces from several different puzzles, with ninety-nine per cent. of it missing.

For *Homo Sapiens* is not the only race of man that has trod this Earth.

Other races have sprung from the Primate stock, developed and played out their lives—and failed. They have left their bones to puzzle anthropologists, to set problems that even now we cannot be completely sure we can answer, and that cause men still to go on digging into the dark and mystery of the past.

It is perhaps not surprising that only twenty years ago scientists laughed at the idea that *Homo Sapiens* predated blunt-faced, brutish Neanderthal Man—although we now know that this is true.

A mere million years ago came the mutation that was to give to man his erect carriage and to lead directly to the enlarged brain and the evolution of true intelligence. It is a profound reflection on the working of evolution how small a change will multiply manifold an organism's chance of survival, for one change automatically leads to another, and then to others—until a mutant-making cosmic ray can create a race that spans the Galaxy, first in mind and then in fact. Yet there is no predestination in evolution, only a response to environment triggered by mutations, the response being fully creative within the limits set by the available gene patterns.

And so the main structure of man's body was born, and an ape-like creature came down from the trees to walk erect and explore the rolling, grassy inland plains.

But this ape-like figure is not now regarded as being in any way similar to the apes of today. Such is the cloudiness of the past, the frustrations inherent in trying to read a ten-million-year history from a pitiful handful of bones, that very strong views, almost completely antagonistic to each other, are held by eminent anthropologists. There is even dubiety over what actually are human characteristics, and whether what we regard as humanlike traits are new developments of evolution, or hang-overs from an ancestral type lost in parallel ape evolution.

It seems clear that the skeleton form that was to develop into *Homo Sapiens* did not descend from the trees as a fully accomplished brachiating ape; rather a common stock split, apes remaining to grow their powers in the trees and men to dominate the land. A fossil Primate, fragments of bones discovered at different times in a Tuscany coal deposit, called *Oreopithecus*, dating from the Miocene, which began thirty-five million years ago, lends support to the theory of early independent development of the line leading to man. These bones, which have some man-like characteristics, date from ten million years before any other known man-like fossils and until more come to light we must continue to read the riddle from the fragments we have.

On the great plains of Africa, which had come relatively

unscathed through geological upheavals, there were no trees thick and close enough to swing about in. Grasses covered the world. Across the wide savannahs galloped fleet herbivorous animals, pursued by giant clawed and fanged carnivores.

And, into this hostile world, stumbled the crude figure of an animal with only two feet to support him in the race for life. The mutation that had altered his pelvis had caused him to adapt past the point where he could run on all fours; but his bipedal stance freed his hands for picking up rough clubs and for throwing pieces of rock—the die was cast. From then on the basis of successful evolution changed from physical to mental prowess. This “ape-man” left his bones for us to find, and, incidentally, to write “finis” to a chapter of violent scientific turmoil.

As soon as Darwin had published his first cautious evolutionary theories in the “Origin of Species,” in 1859, the opposition immediately jumped on the lack of evidence. With half-digested notions of what evolution meant, and with a repugnance against any kinship with the apes, they demanded that an animal half man half ape be found. It came to be known as the missing link. The popular Press had quite a lot of fun with it for the next sixty years.

One archæologist became so incensed, so convinced the missing link did exist, that he went to considerable trouble to provide it. It is not enough for us merely to dismiss “Piltdown Man” as a hoax—it was the concrete evidence of the fanatic desire of one of the “evolutionists” or “Darwinists” to prove their point that man evolved from earlier forms.

On the 7th February, 1925, when “Piltdown Man” was still accepted as a fossil on the road of evolution, with yet something of an odour of not-quite-rightness clinging to it, Dr. Raymond A. Dart, professor of anatomy at Witwatersrand University, Johannesburg, published a preliminary report of a small skull discovered just six weeks previously. It had been blasted out of the limestone near Taungs in South Africa. It was almost complete, including the lower

jaw and all the teeth, and the right side of the brain in the form of a cast. Dart decided, almost immediately, that here was the missing link. For, although decidedly apish in appearance, certain definite characteristics lifted it past the ape stage and brought it on towards the human side of the ledger.

The scientific world scoffed at Dart's claims. It was not until further finds beginning in 1936 and continuing, with various interruptions—of a monetary and political nature—that the original daring guess was proved correct. The man who became intimately involved in this discovery was Dr. Robert Broom, a Scotsman with an adventurous background.

Thereafter, until his death in 1951, Broom discovered more fossils of this primitive type of walking ape, describing one find as: "the most valuable specimen ever discovered." The story unfolded by these remains upset completely the then accepted theory of the evolution of man. It now became certain that the pelvis was the great transformer, changing the ape form into an upright, bipedal form, and that the enlargement of the brain followed this development. Man did not acquire a brilliant brain, and then come shambling down out of the trees on short, bowed legs.

The story of man's evolution underwent profound changes and, coupled with more evidence brought to light by new dating methods, seemed to point unmistakably to animals with the bodies of men, walking uprightly in the dawn of history with ape-like heads and faces.

And yet, quite definitely, these early men were not apes. In no time at all, compared with the slow changes in the bodies of the reptiles, man was picking up pieces of sticks and stones and using them as extensions of his own unadapted body. The animal who had, for the first time in the history of the Earth, adapted in ways that were unspecialized enough to allow further adaption, was laboriously learning the way to control and mould his environment, in direct contrast to all previous forms of life which had been sculptured by their environment.

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because a man has money he is of a low grade of intelligence; there is no intrinsic intelligence in poverty.

As for your example; it is on record that a ship's steward, a Chinese, lived for well over a hundred days after being shipwrecked on a small raft with no means of propulsion, no food, no water and no means of steering. When picked up he was in a surprisingly good state of health. He had managed to catch rain water and fish, from which he had also obtained drinking water, and had exercised his muscles by a

simple routine—there is no intrinsic intelligence in dying.

An intelligent man is, or should be, one who can collect data and use the data so collected. The better he can use that data the more intelligent he is. There is nothing which prevents a man from becoming a genius in financial affairs, but such men are not popularly known as geniuses. The popular conception of a genius is someone who persists in doing something which requires the patronage of others in order that he be able to do it. The majority of such geniuses do not acquire such patronage and they starve—there is no intrinsic intelligence in starvation.





# Child's Play

by KENNETH BULMER

THE TECHNOLOGY OF A CULTURE IS USUALLY REFLECTED  
IN THE PLAYTHINGS OF ITS CHILDREN. BUT IT COULD  
BE REVERSED

YANDRO LEFT LICIA OUTSIDE AND WENT EAGERLY INTO the dim blue coolness of the village machine shop. At once he knew they had been traced. And with that knowledge came the grim realization that getting off this planet presented new, sudden and frightening difficulties.

Although he might not be familiar with the operation of Earthly factories, a single glance told him that no sane mind in the Galaxy would leave lathes running until oily blue smoke gushed from bearings, tip molten metal in lambent pools across forges and workbenches and set a twenty-ton press thumping on empty dies with all stops out.

A row of plastic moulds had been ruthlessly hammered open and pre-fired plastic powder still drifted in the air like floating gossamer garments. There was no sign of the *Vyls*.

Voices raised in harsh demanding overtones indicated the search was not over yet. Cautiously, Yandro approached the far door. Earth gravity was near enough normal for him to walk with confident silence. Already he had guessed what he would hear and dismay was rapidly giving way to frustration and anger, and a chilling fear that this was the end, that the Galaxy would smash into ruin as complete as this machine shop. And he would be impotently chained on this planet unable to sway the decision.

"Thin and dark, you say?" The voice was like a hacksaw.

"Yeah, mister. Yeah. Thin, and sort of edgy." A slobbering whistle of indrawn breath. "I didn't know him, mister!

Honest, I'd never laid eyes on him—— Don't hit me! Don't hit me again——”

The soggy sound of a blow.

Another voice, ragged, impatient, fumbling with unfamiliar syllables.

“When is he coming back?”

“Tomorrow. He wants this job urgent.” A groan. “God, my face!”

Another blow.

Yandro wet his lips. His fingers were rasping the harsh wood of the door, unheeded as bitter thoughts coursed through his mind. He turned away, thin and dark, cat-like with the tension of light-drive repression building inside him. He went back across the ruined shop, not bothering to look for the *Vyls*; he knew that the instrument would be near the two security men and effectively as far from him as centre star system.

The sunshine in the village street made him blink his eyes.

Licia was waiting, leaning against the wall as though she had all day. Her face, smooth and childlike still in spite of the load of responsibility that lay on them both, turned towards him eagerly like a flower towards the sun.

She said: “They had it ready today? Good . . .” And then she read his face. Her voice faltered. “We’re found.” She repeated the words, as though fascinated by them. “We’re found.” She shook her head.

Yandro walked straight on. He took her arm and they went together along the dusty street under the drooping trees. A dog barked from the middle of the road. A postman cycled leisurely past and an aproned butcher came to the door of his shop. No one in the sleepy village could appreciate that there were men not of this world walking the streets, and, Yandro saw with a twist of sick despair, they could neither be asked for help nor could they proffer it.

“Couple of security men,” Yandro said. His fingers bit into Licia’s arm. He walked rapidly, then slowed as he tried to attune his outward semblance to the slow-pulse of

life in the village; inevitably, he gradually walked faster and faster, his long legs eating up the ground, joltingly, impatiently. Licia turned unexpectedly, pulling Yandro with her, and they cut down a shadowed side street, the cobbles silent under their padded shoes.

"Tell me about it."

"What is there to tell? They must have tracked the life-shell, following up the radiation from the *Vyls*."

"But the *Vyls* was broken——"

"I know! I know! But it's still good enough to power the life-shell for interplanetary journeys." He kicked at a loose stone. "It must have been giving some radiation. Enough, anyway. We were lucky to dodge them off that big ringed planet after they'd shot us up. I thought we'd shaken them off then. But they're no fools." Yandro's voice was bitter. "They guessed too easily that we'd make for the planet of this system most like home. They're no fools!" he repeated viciously.

"No!" Licia's voice was sharp. She shook her arm under the grip of his fingers. "We had to come here. We had no choice. Any other planet would have been unthinkable."

"I suppose you're right."

"Any other planet for hiding—this one for machine shop repair facilities. We have to repair that *Vyls*!"

Yandro stopped and faced her. His face was grave.

"Not repair, Licia," he said slowly. "We no longer have even the broken *Vyls*."

She stared back at him, her eyes disconcertingly large. "All right," she said. "All right. Then we'll make a *Vyls*."

"But, Licia——"

"I can sell some of this cheap jewellery. I noticed the stuff they sell in shops here and this will probably last us for food and essentials. With the rest we buy tools and you proceed to make a *Vyls*."

"I admire your quick perception of relative values in marketable commodities and in food," Yandro said deliberately, goading Licia, trying to build up her opposition for the shock. "But I'm sorry to say I don't match that efficiency in craftsmanship. I couldn't build a *Vyls* to save

my life." He stopped short, laughed abruptly. "As though it isn't to save my life. And yours," he finished softly.

"We'll find a way," Licia said defiantly. "We have to!"

"All right." Yandro was very conscious of her, her hair shining in the sun, her face shadowed by the walls of the alley. "What do we do now?"

She moved her shoulders helplessly. "I don't know."

Three small children bounced from a doorway, startling them with the suddenness of shrill voices upraised. They had a flashing glimpse of little flushed faces, tightly screwed eyes and pouted lips, a flurry of dresses. It was like a tornado hullabalooing down the narrow lane. Yandro and Licia too, tensed up, jumped like startled children themselves. Then, with the reaction, they watched the three girls go fighting on over a single patched, warped and spindly hoop.

"Whew," said Yandro, shaken. "We're being drawn into our troubles too deeply. We've got to have some perspective on them."

Licia agreed. "When three children of a primitive race can throw a scare into us——" She stopped, half-smiling, as Yandro slid his energy gun back into its sheath.

"Come on," he said with sudden determination. "We'll check whether they've discovered the life-shell. If they haven't, we can plan from there. If they have . . ." He did not finish the sentence.

On that count they were lucky. They carefully inspected the approaches to the pool where the life-shell had been hidden, cautiously approached and then, satisfied that the Galactic security agents had not found it, entered. Licia selected a few trinkets and then they left as rapidly as they had entered. Yandro did not care to dwell on the personal relationships between Licia and himself, and sight of the familiar cabin in which they had journeyed from sun to sun, brought back unwelcome and yet fragrant memories.

Licia was very beautiful, standing waiting for him on the brink of the pool, with the dappled shadows falling across her face and hair. Desirable, too—but they were on a job; if the Galaxy was to throw off the yoke of oppression, then

they must concentrate on getting back to centre system, which meant getting off this little planet, which meant making a *Vylys*. Which was something that Yandro knew he was incapable of doing.

"There, look at that." Yandro held up for inspection an object which quite obviously was masquerading as a *Vylys*. Scraps and chips of plastic lay about on the grass. Sunshine winked from bright edges. "Look," Yandro cried disgustedly.

With a quick motion he threw the pitiful object as far from him as he could. It fell into a clump of toadstools. Their flesh was a bright, bilious yellow.

"We'll try again," said Licia, looking up.

"It's no good. No good at all." He picked up a fresh block of clear plastic. "Even this isn't right. Now, if this was the planning stage of a production job, with *Vylyses* coming off the line one a minute, I'd be happy."

"But you know all about a life-shell, Yandro."

"Sure. I've even worked out that we'll only need a five-stage *Vylys* to take us as far as centre system. But I'm no manual worker. Plastic has to be moulded under tremendous pressures; complicated and costly machinery handles it all through. The end result, which might be a cheap handle or frame, has taken up thousands of man hours and huge amounts of money to design and produce the first one." He laughed and tossed the block of plastic. "And I'm setting out to carve one with a knife."

The block was a simple-looking device. Even Yandro wondered why he couldn't carve out the channel to take the impulses—*so*—and then the junction—*so*—and smooth the surfaces inside to a special curve that—Yandro cursed again and hurled the knife to stand quivering in the turf. The channel had again been gashed as though by some infant maniac. It bore no resemblance to the sure contour of a *Vylys*.

Licia, a little contritely, said: "Perhaps we ought to try sending out drawings to machine factories again."

Yandro grunted sardonically. "You remember the letters?

'Regret unable to supply you with one off.' 'Sorry unable to produce such a small run.' That's no good."

"Well, let's try sending a drawing to a small shop somewhere on the other coast. It might work."

"It might. But how do they know us? We'd have to send money."

"I'll sell some more jewellery. We'll have to chance going back to the life-shell."

"Very well. But it's a risk for a certain failure."

The risk part came off. Licia swam back to the surface of the pool, leaving the life-shell to the darkness below, and was impatiently pulled out by Yandro. Then they melted into the darkness of the forest.

"It's becoming more and more of a risk, hiding near the life-shell. We might be discovered any day. We're moving over the hill, tonight, now, and setting up respectably in the nearest town." Yandro paused, eyeing Licia. "Well?"

She nodded vigorously. "Good. We'll send out drawings to manufacturers. I brought the Galactic handbook section dealing with mores and customs here. And we'll have to improve our command of the language. We daren't let these people become aware of the intelligences loose in the Galaxy."

"Right. Then we've a long walk ahead of us!"

By the time they had bargained for a room in a cheap hotel after their midnight walk, they were both dead tired. They awoke late the next day, had breakfast in bed, and went along to the public library where they made up a list of machine shops they considered likely. When Yandro had sent off the drawings, with little expectation of success, they settled down to wait. The waiting was not prolonged.

In the wake of this latest series of requests for factories to produce at least one *Vyllys* there came a gamut of violence, arson, wrecking and murder.

White-faced, Yandro read the news in the daily paper. Licia, her eyes heavy with loss of sleep, drummed restlessly on the bare wooden table.

"We have to get out of here," Yandro said unsteadily. "They can trace those letters."

"All right." Licia rose slowly. "Where to?"

"I don't know." Yandro's voice stirred something in Licia. He went on: "I don't know what we're going to do, but we can't stay here. That's certain."

"Don't worry, Yandro," she said; for the first time, perhaps, their real relationship spilling over into spoken words. "We'll think of some way to get off Earth."

They were both bundles of nerves. Their faces were drawn with the gnawing uncertainty of the unnatural life they were leading. It wasn't just that they were on the run from security men who would shoot at only half a sight; they felt suffocated, hemmed in, marooned, cut-off from all their own worlds. No Galactic could face with equanimity the thought of being planetbound without a life-shell ready on call. Packing their few possessions in a cheap cardboard case and settling the bill with trembling fingers spilling money across the desk, they began to walk out of town. This way, Yandro explained, they were less easily traced.

The problem had assumed a stark simplicity. The security men had every avenue of production covered; even the ruse of trying to build a *Vylys* in its five separate stages and assembling it at the last moment would fail, because the galactic agents could cover every resource open to Yandro and smash the device the moment it assumed a recognisable shape. They walked slowly through the evening glow, heading out of town, towards—what?

Later that night, when their limbs were too weary to support them further, they chanced a ride on an inter-city bus, and lay back gratefully in the padded seats. Directly in front of them the driver sat bulking over the wheel, a black shape against the light of the headlamps on the road. Yandro noticed from the corner of his eye a mother and child in the seat across the aisle. The mother was having trouble.



The kid insisted on kneeling up and peering over the back of the seat. He wriggled about, then plumped round and stared out past the driver. His legs stuck out over the seat and he drummed his feet against the back of the seat ahead. Yandro found a sly amusement in all this and, when the kid took out a round piece of wood on a string and began rolling it up and down, Yandro recognized a familiar plaything from the worlds he had known as a child.

The mother tried ineffectually to stop the child playing. She called the toy a yo-yo and tried to take it away. The kid bawled. The rest of the journey was lively, instructive and quite amusing. But neither Yandro nor Licia slept much; when they alighted their bones felt like rubber.

They walked away from the lights of the bus station, aimlessly choosing the first road they found. Streaks of colour lightened the eastern horizon. It was chilly, and thin bird calls drifted from the trees along the road.

"I'm thirsty," Licia said. "We should have had breakfast back there."

"Sorry," Yandro said absently. His mind, strangely free, almost lucid with the dream-like quality brought on by his physical tiredness, was playing with an astonishing thought. He remembered the three girls fighting over a broken hoop. He could still see the image of the boy struggling to play with his yo-yo. Determination, and achievement. Children seemed to get their own way on this planet. The thoughts weaved in and out, rising to the surface of his mind like fish in a pool, then sinking again down to the murky depths. Surely . . .

They ate at a wayside cafe, where huge lorries crouched waiting for their drivers. Yandro doodled idly in spilt coffee. Presently the idea began to shape itself in his mind with less hesitancy. He sketched in details and worked out chances. The more he thought about it the better it looked. Presently he found a quiet spot by the wayside, where trees shaded a stretch of mown grass, and began to carve another *Vylys* from his last block of plastic. As he worked he began to smile. His fingers found a greater surety of touch and although the finished object was useless as the driving force

for a life-shell, it would most admirably serve the purpose he had in mind.

He picked up the plastic briskly, nodded to Licia, and set off for the city.

Young Tommy Rogers had never been strong and the leg he carried about in iron supports prevented much of the freer life of a normal child. So that when he appeared full of a new game he had "found," Bill, the gang's leader, was contemptuous of it, directly brutal as children inevitably are.

"Soppy old game! We're playing Robin Hood. You can be Maid Marion and we'll rescue you."

"It's not a soppy game——"

"Come on!" This from Harry, brandishing a huge quarterstaff as Friar Tuck.

"Go on, hide in that tree," Bill gestured grandly.

Young Tommy, his new game hugged to his chest, limped away. Robin Hood was a good game and it was smashing of Bill to let him play. But his new game was better. Much better! He sat down and began again trying to channel the coloured balls through the right holes in the transparent block. It was jolly difficult. But he had done it, and he strove to recapture the feeling of elation he'd experienced then.

Presently little Jimmy came over and sat down.

"I'm deaded. What's that?"

"Game." Tommy was absorbed. He didn't care for Jimmy staring at him. It unsettled him. At last he thrust the plastic block forward, saying, angrily: "All right. You try. Bet you can't!"

Little Jimmy did it first time. The red ball rolled to the right and the blue ball rolled to the left. Tommy stared open-mouthed, disbelieving.

"Luck! Do it again. Bet you can't!"

Jimmy didn't. After a while, as players of this new game, they became engrossed in a heated argument as to their respective merits. Soon Tommy was sharing his game with them all. They grew excited. It was fascinating. There was something about the way the balls rolled, something almost hypnotic, something in making them roll—so—that demanded intense concentration.

Bill stood up. He was the leader. "I'm going to get a game for myself. My dad owes me sixpence pocket money. I'll beat you all." He swaggered off importantly.

In another part of the same city:

"But, Willie," said Mr. Brewster in half-annoyed puzzlement. "Where did you get it?"

"Man."

"What man?"

"Don't know."

"He just gave it to you?"

"Yes." Willie took a deep breath. "He was nice. He was playing with it and then I played with it, and then he said I could have it and I showed it to the gang and they played with it."

"I see." Mr. Brewster looked at his other son, who looked covetously at the game. "All right, Johnnie. I'll buy you one." And, of course, trying to buy a game, later that day, he trudged round the toyshops—and failed. The shops had been inundated with requests for this mysterious new game of which they'd never heard. Mr. Brewster returned, hot and tired, and crossly told Johnnie that he would find him a game, even if, he swore, he had to make it himself.

How do children's crazes start? The nationwide indulgence in one single game so that toyshops are at their wits ends trying to supply the demand is a phenomenon more remarkable for its continuous appearance than for its rarity. Local mass demands for games, too, occur with regularity. Yo-yo's, shuttlecocks, spinning tops, marbles and fivestones, they occur like the inexorable march of the seasons. One day the streets are filled with children playing hopscotch, the next every infant has a hoop he spins madly between the wheels of traffic.

And when a new craze starts there are wet eyes and flushed cheeks until every last mite has his or her vital piece of equipment. Life would be impossible without the five coloured stones, the cigarette cards, the fur cap or the jumping jack.

Surely, the strangest craze ever to break over the country was one which, quite directly, influenced the entire course of Galactic history. Yet its beginnings were inauspicious, comical even.

When harassed parents, driven to desperation by the single-minded demands of their offspring, were unable to find a single game in the toyshops, they took the only other course. Handymen soon produced replicas of the game. Most were crude, ill-proportioned, functioned only half-heartedly. There was something about the *game* that demanded precise proportions. Unless the channels and holes were correctly spaced and sized, all the fun, the children swore, went out of the game. The craze spread. Gradually better and better models were turned out from home workshops.

Outbreaks of the game spurted up from widely separated towns and there was nothing, at first, to connect them with the two haggard but hoping people travelling furtively by night, carving plastic in secret and distributing their own models of the game to focal points of infection. Yandro and Licia were busy.

The great game was on, with the Galaxy as a prize, and all depended on the popularity of a children's craze.

Inevitably:

"And the next item on the agenda is consideration of requests for a new game that have come in from retailers all over the country." Quentin R. Worthington paused, adjusting his cumbersome, unnecessary horn-rimmed spectacles. He glanced along the shining boardroom table, immaculately spaced with clean blotting pads and the polite, efficient, smoothly ruthless faces of the directors of SUPER TOYS AND GAMES.

"I have a model here, sent to us by one of our salesmen. He showed acumen in obtaining it. I understand that the salesman of Grigson's Handicrafts had been angling for it." Worthington nodded, as if to emphasize that this sort of conduct was expected. "The only point we have to consider is the patent rights in the invention."

Laney, the thin-faced production man, coughed. "No patents apply here. It's all over the country. Where——"

"I'm not talking about breaking patents, Laney!"

Laney subsided. Burbee, the company lawyer, snapped a hand down on his blotting pad. "I've studied the position, Q.W.," he said in his rasping tones. "We cannot file a patent application on it. It's too far gone. But I feel we can pick up a point or two, something like production and particular adaptations. The production side will have to come up with their ideas on that."

Q.W. raised his eyebrows. Laney nodded. "We can fix something, Q.W."

"Good." Wothington raised his head and stared down the table. "This is the biggest single game boom that has hit in years. All the kids are playing it. Where it came from, I haven't the faintest idea. But it's our salvation!" He coughed and wiped his lips with a spotless handkerchief. "I don't have to underline the status of this company. We must have a thousand models coming off the lines in a month, and we'll step up production as far as the market will take it."

"The market looks too good to be true to me," said the sales manager.

Burbree said: "There seems some fascination about it. My children were trying to get those little balls in their right holes yesterday—my cousin out in Blackwood made up a couple of models—and I must admit some of the absorption caught me, too." He laughed, a little self-consciously.

There was a ripple down the table. Laney put his hand into a pocket, came out with a block of plastic.

"I was trying to do this all the way here this morning." His eyes shone. "In three quarters of an hour I did it twice. Not bad!"

Q.W. exploded. "Not bad!" His face brightened. "I managed it four times in forty minutes. Beat that, if you can, gentlemen!"

Around the table everyone, it seemed, couldn't beat that record. But they'd all tried. Every single one of them.

With something positive being done, action to be taken that was producing results, the subtle shift in relations between Yandro and Licia hung fire. Yandro grew confident, almost cocky. He began to see the future opening up with promise, and with that bright prospect his own spirits soared so that Licia could resume her rightful place of helpmeet once more..

And things were going well. True, they were tired all the time. They were down to the last of the jewellery, and part of that bright future was tinged with the darker hues of possible burglary. But they saw many evidences that the craze was catching on. Children were playing with *Vylyses* wherever they went, and although none was in any way suitable to power a life-shell, Yandro knew, with a faith stronger than he realized, that as soon as the big firms caught on—they'd be off the planet.

"It's all a matter of proportion," he explained. "When you hand out the *Vylys* to the children and show what it can do, you form a link between just that particular hypnotic effect and the ratio of channel size. It's a very simple basic principle; even these people here know about the rhythmic movement in the early stages of hypnosis, but it is carried to further extremes, each movement of those coloured balls reinforcing the effect and demanding their correct and only manipulation." He laughed. "The more you try to put the balls in their right channels, the more you want to do, and the less you will accept any other path than the one ordained—and that is the one through which all the power of the real *Vylys* is channelled."

"How long?" Licia said, a little impressed.

He shrugged. "It's impossible to say. The design of the *Vylys* is such that it can be produced efficiently and cheaply from plastic in just one way. These people have that technology level, all right. You can see that all over."

"So we've still to go on waiting, and hoping, and dodging and running?"

"It won't be long now, Licia."

"And if the security men catch us first?"

"I keep my gun oiled."

She sighed, and turned away, and so they left the topic again. Yandro always felt uncomfortable. Licia had such a damned knack of pulling out of him just the things he wanted to keep hidden. But everything pointed now to a crisis within the next few days, and, quite aside from their dwindling resources, he welcomed the challenge, to prove once and for all just who was running their team.

Following the growth of the craze, Yandro was impressed by the parallels between children's games and an industrial revolution. First the invention and the crude hand-manufacture, until the device was well enough established for small batches to be run off on quickly-adapted machinery. As the craze penetrated the country, demands grew, industry geared itself up, a whole new technological process swept into being. If the fate of the Galaxy had not hinged on their getting off Earth, Yandro would have been impressed by what he had done to the economy of a country.

"How many security men do you think there are on Earth?" Licia said to him one day unexpectedly. They were just about to enter a typical sleepy, paunchy market town, and the question unsettled Yandro. It lay too close to the direction of his own thoughts. It was no use trying to be evasive with Licia, though.

"If I was running their show," he said quietly, "I'd pull in as many agents as I could muster. This is the biggest thing yet." He gestured towards the spires and roofs ahead. "We've got to go into that jungle and obtain a complete *Vyls*, which means buying the five separate stages. I'd say that the security men had a rough plot on where we landed and have widened their search from there. They'll go on and on, probing and poking about until they turn up some clue. The whole place here might be full of them."

Licia gave a nervous laugh. "Or it might be empty. We've got to go in and buy the *Vyls*—that's what the plan calls for."

"We could try another town or village——"

"How can we tell where they'll be?" She shook her head. "We have to make a decision some day. The last town said

that they expected a consignment any day now. So, three days later, we can expect that this town will have a stock in the toyshops. It's as simple as that."

Yandro did not reply. They had entered the descent leading into the town, and houses were growing more thickly on either side. Going from place to place, making quick enquiries at toyshops, buying food, hoarding the money, this life was wearing them both ragged. He had the feeling that everything was boiling to a head; that if this town did not witness the final act, then they might as well call everything off. And, when they had bought the *Vylys*, they still had to make their way back to the life-shell, there to assemble the five stages, install the complete *Vylys*—and blast off.

A motor cycle passed them with a shattering roar. They both jumped.

"Steady," Yandro warned, uneasily.

The sun was high. Smells drifted up. People walked casually to and fro. In the main street a large van was unloading corrugated cardboard boxes, the driver making a big job of carrying them into the back of the shop. Yandro nudged Licia.

"I see," she said quietly. Outside the shop there were many children, waiting in a seething mass of impatience.

"We'd better wait until the kids are served."

"May be none left."

"Humm." Yandro bit his lip. "All right. You go in. I'll stand on the corner and watch. Any trouble—run."

She flashed him a smile and went and stood at the edge of the crowd. She kept the smile on at half power, so that a grumpy man who was about to snap at her for taking his place merely mumbled and fell back. Presently, children began coming out of the shop. They were already manipulating the coloured balls in their *Vylyses*, frowns of fascinated concentration on their faces. Licia realized anew the power and strength of the hypnotic compulsion Yandro had worked into the movement of the coloured balls. He certainly was clever, if a little naive . . .



She had moved up with the crowd as far as the door. Inside she could see three perspiring assistants selling *Vylyses* as fast as they could be unwrapped. Certainly, Yandro's plan was good for business. Just before she went into the cool interior she gave a quick look over her shoulder. Yandro was leaning against the red brick wall. He nodded slightly. Reassured, she went in.

The money from her purse was warm in her hand. She put it on the counter, and asked for five *Vylyses*.

"Sorry, miss. One per person. Demand . . ."

Licia did not bother to hear the rest. She picked up the clear block of plastic, her hands seemingly possessed of a life of their own. The red and blue balls fell onto the floor and rolled under the feet of a group of eager children. She turned and pushed out of the shop, breathing a little too fast. Someone behind her called after her, but she did not turn back.

"That's a blow," Yandro said, after he had sworn. "Only one! Well, we'll have to buy the rest as soon as we can." He looked down the street. "We'd better try another shop now." It was no use his queuing here; the crowd was stretching down to the corner.

They picked up two more *Vylyses* at the next shop but one, and then, walking away down the main street, they heard the explosion roll in a long muffled crescendo from the walls behind them. They began to run. A fire-engine bell clattered hysterically. They panted out into the countryside, cutting off the high road as soon as they could. In a greenly dark copse they leaned against a tree and gasped for breath.

"Only—just—in—time," Yandro said. He drew in air with a great gulp. "This pace will kill me."

"It's not the pace," Licia corrected. "It's the rate of change. One minute we're acting like peaceful citizens, the next like hunted criminals. Next town?"

"Next town," Yandro said firmly.

On the way he checked the three *Vylyses* they had. They fitted perfectly. They were as well-produced as any for a luxury life-shell coming from the yards on centre system. And they depended for that perfection purely because he

had a sound knowledge of dynamics and function in production—as, apparently, had the technicians of Earth . . .

Having three parts of the jig-saw in their pockets gave them a certain confidence as they walked into the next town. This time there was no van. But there was a fire engine and a blackened shell which once had been a toy shop.

"They can't mean to blow up every toy shop in the land!" whispered Licia, horrified.

Yandro's jaws worked. He felt sick.

"It looks like it. We'd better travel as fast and far as we can. Start again right away from here."

"And our life-shell?"

He swore. "I don't know! We'll just have to buy the other two *Vylyses* somewhere and come back. It's all we can do!"

Licia's mind worked analytically. Stress and things going wrong, and Yandro was reacting again. She would have to retain her own composure; the Galaxy seemed very far away.

When Yandro felt hungry they discovered that they had just one silver coin between them. Yet they had to eat and cover a great distance. The future became black and menacing, their near success making more ominous every difficulty. They began to walk. The sun slipped below the horizon. It grew chilly and a dismal wind plucked at them.

Yandro stopped in the middle of the road, hands on hips. He stared back. Lights from the town stained the sky.

Then he turned round and began walking back, going hard and angrily, and Licia had to run to catch up with him.

He refused to answer her when she spoke. Petulant, and yet aware that Yandro was labouring under an emotion that was strange to her, she went with him, silent, apprehensive, half resentful.

He skirted the town, going through gardens and open fields. On the far side he plunged on. They reached the town where they had bought the *Vylyses* and here Licia had to pause to regain her breath and rest her tired body. Yandro prowled, tensed and impatient; she could almost see a

lashing tail. Then they went for the lights in a cottage window.

Yandro knocked. His hand was under his coat.

A white-haired man opened the door, eyes blinking in the darkness. Yandro pushed past him, silencing the protest with a throaty growl. He glanced around the neat kitchen. A woman rose from a chair, wide-eyed, hand at her throat.

"Do you have children?" Yandro asked.

The man's angry words were cut off, cleanly, empty, as Yandro produced the gun. "Children?"

"Yes," sullenly.

"Have you bought a *Vyls*?" A pause. "I mean, have you bought one of these new games?"

"Yes—what's the idea——"

"Give it to me!"

The gun was an argument against which the cottager could bring nothing. He went upstairs, and Yandro went with him with a quick jerk of the gun at Licia to watch the woman. He came down again, the *Vyls* held in his other hand. They went outside. Before they had reached the gate the man had rushed out the back and gone racing madly into the darkness. The whole affair had the crazy unreality of a dream sequence.

"We can't get away with that again," Yandro said thoughtfully.

Walking along the road in the darkness, with the pre-dawn bird chorus just tuning up, he was lost in thought. Presently he stopped. He began to draw in dust at the side of the road. When he stood up, his eyes gleamed in the last of the moonshine.

Licia said: "A four-stager is not powerful enough?"

"No."

Towards true dawn they struggled off the road and lay in corn stubble, concealed by an overturned stook. Yandro kept a watchful eye on the road. As the day brightened cars speeded past, a tractor, farm implements towed behind,

people on bicycles. At last Yandro stood up, stretched and smiled at Licia.

"Our last throw," he said. The words were flat; but Licia sensed the tautness, the strain, in Yandro's brain.

They went down onto the road when a car's engine sounded. Licia stood in the middle of the road at a nod from Yandro. She held up her hands. The car squealed to a stop. It was a black family saloon, completely unremarkable.

Yandro leaped to the driver's door, gun pointing.

A white face, a quick growl from the gears, the car moving . . . Yandro brought the gun down savagely. He ripped the door open, jumped inside. The car stopped. Licia got in the other side, pushing a screaming woman out of her way.

Then they were off, zig-zagging down the road as Yandro fought with the clumsy controls. A sudden scream from the back seat, where the man's body lay like an empty sack, snapped Licia's head round. The woman hung half over the seat, her stockings gleaming. On the back seat a child lay, wide-eyed, yelling, hands clawing at his mother's head.

Licia felt sick.

"Deal with him," Yandro said icily. Then: "What luck! He must have a *Vyls*. Look for it."

Obediently, Licia pushed the woman over and followed. This was a new Yandro. The woman fell unconscious as she hit her with her shoe. The child she could not touch. After a time the screaming grated so on her nerves that she called to Yandro to stop. A *Vyls* was lying on the seat.

"Yandro, do something about this child. Quick!"

Yandro looked back, stared at the child's huge eyes. Presently the child stopped screaming and then fell over on his side and went to sleep. "He'll be all right."

Licia shivered. She felt a sorrow for these primitives creep into her mind, undermining her resolve—and then she remembered what was at stake, and knew the Galaxy counted more than the comfort of any single person on Earth. Including them. The car started off with spinning tyres and horrible noises from the gearbox. Yandro drove

fast, not recklessly, but as though impatient with the inefficient machinery he was forced to use. Licia found maps in the glove compartment and quickly charted off a route to the life-shell. They fled through the sunny morning, with the clouds high above and the green fields flicking past.

Unless they were incredibly unlucky, there was no likelihood of the security agents impeding them before they reached the life-shell. In all probability they were expected to be driven in the opposite direction by the shop-bombing tactics, although there was the strong possibility that a picket had been left to cover the immediate area where they had landed on Earth. That was a risk they must face. Once they had reached the life-shell it would take Yandro about an hour to assemble and install the *Vyls*. The danger would begin as soon as it had been assembled, then it would begin to emit radiation, and the security men would be on it lightning fast. Licia looked back along the empty road.

After a time she thought she recognized the countryside. She leaned forward and tapped Yandro on the shoulder. He jerked, shocked by her touch; his nerves were drawn like silver wire.

"I think we're nearly there."

Before Yandro could answer a bell clanged behind them. Licia swung, eyes wide. A fast black car was pulling in on their rear bumper, its bell clanging like a tocsin gone wild. She saw the word POLICE in blue on its roof.

"We forgot the local authority, Yandro," she said quietly.

Yandro wriggled in his seat, the car still going headlong, and handed her his gun. "Damage it," he ordered.

Licia knew how to use a gun, all undercover agents could. She blasted the front portion of the police car with one flare of intolerable light. It went off the road in a flurry of protesting metal.

Then they had swooped past the town they had first entered, the sleepy village that awoke only after they had rushed through. Straight into the forest, with the car

tearing at the grassy loam and stalling at last among the trees. Yandro flung his last energies into lopping trees in a barricade with the gun. Then, hand in hand, cradling the five *Vylyses*, they fled for the pool.

Diving into the cool water was like returning to some primeval womb of quiescence. The airlock opened in a swirl of bubbles, then they were in, cycling and stepping, soaking wet, into the familiar cabin. Yandro went at once to the engines and began to assemble the *Vylys*. Licia sat before the detector and listened to static-ridden silence.

As soon as Yandro shouted: "She's together," Licia expected activity on the wavebands. Certainly the security men must have their own life-shells nearby; any activity in this area would stir up a hornet's nest.

Should they just blast off in a smother of foam and steam? The quickest way out was straight up, and yet Licia felt a strange prickling on her skin at the thought. Then her eyes snapped to the luminous green lines wavering on the screen.

"They've tracked the radiation," she reported in a firm voice. "Hurry, Yandro."

He grunted some answer, putting all his concentration into placing the assembled five *Vylyses*, that now made up the single, operating *Vylys*, into its appointed niche in the engine. His hands were steady. Perspiration beaded his upper lip and forehead. This whole thing would leave a scar on his mind that many years would scarce erase.

Licia swung the beam pick-up and centred it on the trees surrounding the pool. On the screen they looked dark and somehow unfriendly, the rustling noises sounded menacing.

"Finished!" Yandro shouted and came stumbling towards the control chair.

The interior of the life-shell seemed oppressively hot, as though it were the core of an oven. Licia kept her eyes on the screen. She bit her lip in anxiety. Yandro was warming the engines, sending a flow of current through the *Vylys* hook-up, watching on his dials the story of the change that

underwent it in the convoluted channels resulting from the conjunction of the blocks of plastic where once red and blue balls had rolled in childish play. That change was what took a life-shell into the extra-dimension of super-light travel; that altered energy was what took the alien world by its throat and made possible velocities and powers completely impossible in this space-time continuum.

"Up," Yandro said. He pressed the drive button.

In the same split second Licia saw the trees flare and blacken, saw the security men run down to the lake, following the track registered on their detectors. They had something they were going to throw into the pool. It arced up, silver and glistening, swollen with menace, a threat personified in Galactic technology.

And then the whole picture tilted and dissolved and all the screen showed was a swirling expanse of green and brown, and scudding silver as the sun slanted on the tops of the clouds. The Earth dwindled away below and then snapped into nothingness as the life-shell entered its race for centre system.

"Now we can return and start our real work," Licia said. "The Galaxy may never know what it owes to this planet."

"To its children," said Yandro. "I feel a different man from the one who landed here. It was child's play, child's play, all along."

Even though the Earth might not know that aliens had trodden her surface, the men of Earth had a habit of playing with toys. It was not long before they joined up a chain of *Vylyses*, before they, too, poured electrical energy through those artfully contoured channels.

And then, reaching the stars was—child's play.

# Men Behind the Atom

by **RUDOLPH ROBERT**

*AN ARTICLE ABOUT THE MEN MOST OF US  
TEND TO FORGET ; THE MEN WHO HAVE  
TURNED A DREAM INTO REALITY*

**T**HERE CAN BE NO DOUBT ABOUT THE "ARRIVAL" OF THE atom, for it has become the dominating, and most concrete, reality of the 20th Century. Just over a decade ago, at the close of the second world war, two populous Japanese cities were reduced, through its agency, to heaps of radioactive rubble and dust. To-day, as Sir John Cockcroft has remarked, it is on the point of cooking our dinners.

The atom has not only established itself as the basic "building material" of the universe, but has itself been broken into its component parts. One by one its secrets have been probed, and we are now at the point where it is possible to look back—to pay tribute to the "atom pioneers," and see how this, the greatest of all scientific sagas, began.

## **From Leucippus to Dalton.**

Two ancient Greeks, Leucippus and Democritus, both of Abdera, deserve mention as founders of the atomic theory—four or five centuries before the Christian era. They were the first to think of matter as consisting of tiny, and indestructible, particles far beyond the range of the human eye to see. Their ideas, at that time, had little more than academic interest.

But long after the "glory that was Greece" had declined there continued to be speculation about the mysterious and fascinating subject which they had raised. A Spaniard, Isadore of Seville (560—636 A.D.), mentions the atomic theory in one of his works; and Arabic authors such as Al Razi (865—925) were obviously acquainted with it. In the 17th century, a French scientist, Pierre Gassendi



(1592—1655), attempted to revive the old, Epicurean atomic theory, and was the first to use the term "molecule" to describe a cluster of atoms cemented together to form the smallest indivisible quantity of some material substance. After Gassendi came the English chemist and physicist, Robert Boyle (1627—1691), who discussed atomic theory in correspondence with Sir Isaac Newton. From the latter came the prophetic hint that the atom might itself be divisible, and the forecast that experiments would one day decide whether such was, or was not, the case.

Another English physicist and chemist, John Dalton (1766—1844), may be said to have rounded off these tentative adumbrations of an atomic theory. A teacher of mathematics and physical sciences at New College, Manchester, he established a claim to lasting fame in 1803, when his table of atomic weights was first published. This was subsequently proved to be inaccurate, but there is no doubt that Dalton's work, which raised chemistry to the status of an exact science, was of highest value for the future.

#### **Becquerel's Discovery.**

But a real beginning to the "atomic age," as we understand it, was not to be made until the end of the 19th Century. Only in 1896 did Antoine Henri Becquerel, French physicist and professor at the Paris Ecole Polytechnique, make the outstanding discovery of radioactivity. He had been engaged in an investigation to determine whether there was any connection between the phosphorescence of certain minerals, when illuminated, and their ability to darken a photographic plate through a light-absorbing substance such as a thin sheet of metal or paper. Quite by accident he stumbled upon the fact that certain phosphorescent uranium-salts could so affect a plate. Further experiments proved that this property of emitting rays detectable by a photographic plate did not depend upon exposure of the mineral to light, but was an inherent characteristic of uranium. This discovery was the clue which led eventually to a knowledge of nuclear physics, to the atom bomb, and to the attempts, now nearing fulfilment, to harness the forces of the atom for peaceful purposes.

Becquerel, born in Paris in 1852, was the son of a distinguished physicist. Educated at the Ecole Polytechnique, he entered the Government Bureau of Bridges and Roads in 1875, and twenty years later succeeded to the professorship in physics at the Musée de l'Histoire Naturelle, which both his father and grandfather had held. The importance of Becquerel's researches, destined to revolutionize science (and, in time, perhaps the whole of human civilization) were recognized all over the world and, in 1903, he shared with Pierre and Marie Curie the Nobel Prize in Physics.

### **J. J. Thomson at the Cavendish Laboratory.**

The rest and most enthralling part of the story has for setting the old English university town of Cambridge, where, back in 1869, a committee had reported itself in favour of a lecture room, a laboratory and a stock of apparatus. At about the same time a chair of Experimental Physics had been founded.

James Clerk Maxwell, the first occupant of this chair, indicated in his inaugural address that the laboratory would engage in experiments, both of illustration and research. In 1872 a building was begun and completed two years later. Maxwell began to teach a handful of students the laws of heat, magnetism and electricity. How little did anyone realize that in this same Cavendish Laboratory, so modest in its pretensions, were to be unlocked some of the most closely-guarded secrets of the universe!

One of the greatest of the "men behind the atom" was undoubtedly John Joseph Thomson, born on 18th December, 1856, and only twenty-eight years of age when, in 1884, he was invited to take the chair of Experimental Physics from Lord Rayleigh, who had succeeded Clerk Maxwell and after some years resigned.

Thomson, a physicist and mathematician, originally intended to become an engineer, but was attracted to the study of pure science. When he took over at the Cavendish "J.J."—as he was called—devoted a great deal of his time to electrical research, and some of his best-known work is concerned with the conduction of electricity through

gases. The discovery of X-rays by Rontgen, in 1895, placed a new tool in his hands and greatly stimulated the researches he was then undertaking.

But these activities, for all their importance, were but the prelude to work which, in the event, has proved to be of an entirely original and epoch-making nature. Towards the end of the century, when Becquerel's discovery was known to him, Thomson began the series of experiments which was to result in identification of that infinitely small, negatively-charged particle of the atom known as the "electron."

He demonstrated, in the Cavendish Laboratory, that the electron was one of the basic constituents of all matter, though its mass was less than one thousandth part of a hydrogen atom. A resumé of his work was published in 1897, the year now popularly regarded as the year of the discovery of the electron. Two years later Thomson read a paper on "The Existence of Masses Smaller than the Atom" before the British Association, and won world-wide renown when his views became generally accepted.

Thomson, like Becquerel, was awarded a Nobel Prize, and gathered honours—including a knighthood and the O.M.—from many quarters. When he died, in 1940, his ashes found a resting place in Westminster Abbey near those of Newton and Kelvin and his immortality is thus assured.

### **Ernest Rutherford's Career.**

When, in 1918, J. J. Thomson resigned from his chair in order to become master of Trinity College, Cambridge, he was succeeded by a man of dynamic energy and high scientific attainment—forty-eight-year-old Ernest Rutherford, who had specialised in the study of radioactivity.

Born in 1871, at Brightwater, New Zealand, he won a scholarship in 1894 which took him to Trinity College, Cambridge, and there he became the first post-graduate student to work at the Cavendish Laboratory under the scheme, started in 1895, for research degrees. Three years later he was appointed to the Macdonald Chair of Physics in McGill University, Montreal, and in 1907 to the Langworthy Chair of Physics at Manchester University. Already,

before leaving Manchester to take over from J. J. Thomson at the Cavendish, Rutherford had made important contributions to atomic theory, and among his experiments was one which had realized that age-old dream of the alchemists—the transmutation of matter—when he changed the element nitrogen into an isotope of oxygen. He had published a book in 1904, under the title *Radioactivity*, from which the world learnt, for the first time, of an entirely unsuspected process at work in Nature; and another work, *Radioactive Transformations*, appeared two years later.

Rutherford thought that the structure of the atom must resemble a miniature solar system in which the electrons revolved round a positively-charged nucleus or proton, in much the same way that the planets revolve round the sun. To us this is a familiar concept, but in Edwardian times it caused a tremendous upheaval, particularly among the chemists, many of whose time-hallowed ideas it rendered obsolete.

The new professor's tenure at the Cavendish, begun in 1919, was marked by rapid growth of the laboratory and the numbers in the research school. Soon another and truly astonishing theorem was advanced by him to shake the scientific world to its very foundations.

Since Becquerel's lucky discovery, in 1896, it had been known that uranium salts emitted a spontaneous radiation, and Madame Curie had, a little later, discovered that thorium displayed a similar property. Radioactivity had been interpreted by the early investigators as a process of natural atomic disintegration. Now came the startling suggestion from Rutherford that the atom could be "bombaraded," and its nucleus disintegrated by *artificial* means. By 1920 he had anticipated the existence of what we now know as the "neutron," a particle carrying neither positive nor negative charge. Twelve years were to elapse, however, before the neutron was identified and proved to have real existence.

A man of boundless energy, and a born leader, Rutherford had gathered round him a team of enthusiastic and brilliant young scientists—many of their names have since become

household words—who began to specialize in atomic research. Two of them, J. D. Cockcroft (now Sir John and director of atomic research at Harwell) and E. T. S. Walton, successfully completed experiments in 1932 as a result of which a way was found to split atomic nuclei. This was accomplished by means of “projectiles” fired at high velocity from a special kind of gun—the cyclotron.

This development touched off an immediate and world-wide revival in the subject of nuclear physics. Before 1932 was out a great mass of powerful, atom-splitting apparatus had been erected in the laboratories of all scientifically advanced countries and experimental research went ahead at hectic speed.

Rutherford, however, did not live to see the work on which he and his team had been engaged bear tangible fruit. In fact, it is on record that the “Father of Atomic Energy,” as he has since been named, remained to the end sceptical that this inexhaustible power-source would ever be tapped. He maintained that the atom was a “sink” rather than a “reservoir” of energy, and that the forces required to split atoms must far exceed those they could release.

One of the great pioneering scientists of modern times, Ernest Rutherford died on 19th October, 1937, after a short illness. He was then at the very height of his renown—a man of whom it had been said that, like Galileo and Faraday, he carried the flaming torch of Science forward to new and hitherto unattempted peaks. He, too, was buried in Westminster Abbey; and during his lifetime a Nobel Prize, the O.M. and a peerage were conferred on him in recognition of his vital contributions to knowledge in the sphere of nuclear physics.

### **The Bomb and After.**

A year or two later, in January, 1939, came the decisive turning point for which the world had been waiting; and the names of two German scientists come to the fore. Otto Hahn, working in collaboration with F. Strassmann at the Kaiser Wilhelm Institute, Berlin, announced the discovery of uranium fission. There followed a tremendous burst of

scientific activity, and by 1940, when the war was already in progress, the facts were disseminated internationally and were being studied in all the leading laboratories.

The significance of Hahn's discovery was leaked out from Germany, in the first instance, by two refugee scientists who communicated with Niels Bohr, the famous Danish nuclear physicist. He shortly afterwards left Copenhagen for the U.S.A. where he discussed the potentialities of the situation with Einstein and others. It was evident, from the mathematical calculations made, that, provided a chain reaction on a sufficiently large scale could be started off, the result of uranium fission must be a vast and cataclysmic explosion.

Then began the race for the atom bomb, which Einstein, himself a fugitive from the Nazi terror, warned President Roosevelt that the Germans would undoubtedly try to produce. But the Third Reich, though its scientists had made the fateful discovery, failed in their search for this most terrifying of all weapons and, in fact, never came within measurable distance of making it. Britain's scientists had a clear lead and to further the common cause placed her patiently acquired knowledge at the disposal of America. That country, by drawing upon its unlimited economic resources, was able to complete the immense project—with results that need not be recapitulated. The words "Hiroshima" and "Nagasaki"—shattered by the two biggest bangs in history—are enough.

Today, with the events of the 1939-1945 war fading into the background, there is a welcome emphasis on the peaceful applications of atomic energy; and Britain can point with justifiable pride to its first atomic power station. Calder Hall, in Cumberland, is already in operation and feeding power into the electricity grid for use in homes and farms and factories.

The "Men Behind the Atom" have sometimes been blamed, and their achievements deplored as casting a sombre shadow over the future. But who can doubt that, in the long run, they will come to rank high among the great benefactors and liberators of the human race?

# BY THE FORELOCK

by JOHN KIPPAX

DID BACON WRITE SHAKESPEARE?  
DID SHAKESPEARE WRITE BACON?  
OR IS THERE ANOTHER SOLUTION?

**M**Y UNCLE PYROPELES Q. FESTIPON GAVE A TWITCH OF his whiskers and his goatee beard and settled himself more comfortably in his chair. Then he probed in the top pocket of his crummy old suit and found a couple of rank looking cigars and offered me one. I refused—he pocketed the spare and lit the other. It smelt.

“Well, uncle,” I said, “fancy meeting you outside the family gathering at Christmas. What can I do for you?”

He said: “I want to have a tour with your organization. I want to see what *was* in comfort, just as your advertisements say.”

“What’s the matter with your work at the Foundation Library? Or have you only one student this year instead of three?”

I don’t think he liked the ribbing—classical scholars were rare birds, indeed.

“I *must* travel in time—you see, I have become a Baconian.”

“That’s nice,” I said cautiously.

From behind his smokescreen he explained with some asperity that it wasn’t. In ten minutes I was in possession of the facts about this Elizabethan dramatist Shakespeare, and how, some time after his death, a lot of scholars got the idea that he was just a front man for another egghead named Francis Bacon, and got together a lot of evidence to prove it. Uncle Pyropeles wanted to show me all the details and waved a lot of stat copies, but I fended him off.

“Now,” rapped my aged relative, his eyes flashing, “if I

could meet this Shakespeare in person—confront the charlatan——”

“Hold it. We can’t have you messing up the course of history——”

“Gracious, boy, what do you take me for?”

“We shall make sure before we let you go on a trip. You must have the training course, the same as anyone else.”

“What’s that?”

“Hypno. Socio-ethnological. The right clothes, modern comforts disguised, etc. For the time you’re touring, you’re *of* the period you’re visiting. Assuming you can go, you’ll be allowed six days.”

He tried to haggle at that word “assuming” but I took action. I led him to the doc, and learned that, at seventy-five, he was good for another twenty years. I piloted him out of there and took his money worries off his mind by telling him that I’d be going with him; I knew that he would get no appropriation for this sort of thing. I put a stop to his next peroration about Bacon by guiding him through another door in the medical centre to see Dingo Brown, the Australian trick cyclist.

“What’s this?”

“Psychoplan, uncle.”

“Ridiculous.” He shuffled through the assorted documents in his fist and dealt me one from the top of the pack. “I already have one.”

“*Before* you became a Baconian. Now sit down and don’t fidget.”

After a week of training he was ready. He knew so much about the period he was visiting before he started the course, and his costume of doublet and hose looked perfect on him. He seemed to belong more to the age of Elizabeth the First than to his real one. He took it all calmly, but when the time for departure came, he was nervous. We stepped into the plex ball and strapped ourselves in.

“Okay, uncle?”

He nodded, settled back, and found a cigar. I snatched it



from him and threw it out. "And the rest?" I threw those out, too. Control checked.

"Landing third or fourth of February, 1602."

My aged relative jiggled excitedly. "The month 'Twelfth Night' was produced!"

The pre set start was ticking down to zero. With a hundred seconds to go a door along the ramp flew open and Dingo Brown hurried through. I opened the window and he thrust a paper at me. I was a little annoyed.

"Mr. Festipon's psychoplan—I really think——"

"Did you have to bring it now?"

"Rules, cobber."

"All right." I stuffed the paper away. "Now blow—you've less than a minute."

He blew.

"Watch out for the giddiness, uncle."

"Ready, boy."

Five—four—three—two—one. I stabbed at a button, then relaxed. We were in a grey formlessness, in a blur in which days rolled backwards and became unborn . . .

We stepped out of our carriage into the chill of February, 1602, hugging our cloaks around us. I gave money to the driver, and the vehicle lumbered off to where a bridge crossed the Thames. I nudged uncle.

"Don't stare. He's one of our men. That's the time ball disguised. He'll have it ready here when we're due to return."

He never heard what I said. He stood, transfixed, looking to where an octagonal building showed above the leafless trees.

"The Globe!" he breathed. "Shall we cram within this wooden O the very sounds that did affright the air at Agincourt?"

"We must find accommodation," I reminded him. "We don't have our own hotels in this part of time."

"The Globe!" he muttered. "To have lived to see it!"

I felt that the statement posed a leading question.

We got rooms in a tavern just across the river, "The

Glorious Harry." The ale was fine, the meals were enormous, and the only big snag—the bugs in the beds—were soon under control with the sprays we brought in our comfort kits. Spring seemed to be trying to come early that year, and if we could manage to ignore the filth in the streets, the astonishing language which was so unlike English that we were amazed every time we heard ourselves speak it, then there was something to be said for our venture, quite apart from the special mission of my uncle Pyropeles.

He was so much at ease that I soon stopped worrying about his going out on his own, particularly as there was a dark-haired serving wench named Doll Quickly who looked . . . I regretted that we had only six days to spend there.

At midday on the third day I had just finished a meal of bread and beef and onions, eaten with the knife only, of course, when three men came in. One was fairly young, balding, with a fine pointed beard; the second was similar in appearance, but older and with a good head of hair, and the third was a youth of about sixteen. They sat down and called for ale and food—I took little notice of them until I found my uncle whispering whiskerily into my ear:

"Ssssst! Those over there? Know them?"

"Very few acquaintances in this century."

"Ssssst!" said my uncle again. "The young one is Viola."

"He's *male*," I reproved.

"The women's parts in those days were taken by boys. The one with the hair will be Burbage, the actor-manager, and the other, of course, is Shakespeare." He corrugated his brow. "Funny—I didn't think their association lasted as long as this: the times must be out of joint."

"That's how you got here," I reminded him.

We pretended not to listen as they ate.

"Will," said Burbage, "why go on altering? It's too late now, and what does a word or two matter to the groundlings?"

Shakespeare lugged out a sheaf of papers. "It matters to me," he replied. "Now, listen:

"The spirit of love is quick and lightly dancing  
That, heedless of thy need and dancing—no—  
bursting——"

He threw down the papers. "No, it isn't good enough."  
My uncle had risen, was standing near them.

"Master Shakespeare, may I make a suggestion about those lines?"

They turned to him.

"Gladly," said Shakespeare.

Uncle Pyropeles picked up the papers—he quivered a little. This was his big moment.

"Oh spirit of love, how quick and fresh art thou  
That, notwithstanding thy capacity  
Receiveth as the sea, nought enters there,  
Of what validity and pitch soever,  
But falls into abatement and low price,  
Even in a minute."

They had stopped eating and they stared.

"As though myself had spoken," breathed Shakespeare.  
"The very words I wanted." He called: "Doll, bring pen and paper. This must be done at once." He slapped uncle Pyropeles on the back and told him to sit down.

"This is a great service you do me, sir—what is your name?"

"I am Pyramus Feste," replied my uncle. "It is an honour to help you, Master Shakespeare."

"You are a scholar, sir," remarked Burbage.

"I have some little claim," said my uncle modestly.

Doll brought pen and paper, and I could have punched Burbage's ear for the look he gave her. My aged relative called me over and introduced me as his nephew, Master Keepeace. They were very cordial. When my uncle's suggestion was written down they fell to discussing the play.

"A merry piece called 'Twelfth Night.' Come and see it in a week's time," offered Burbage, "and you shall each have a gentleman's stool, upon the stage."

I could see how disappointed my uncle was.

"I regret that I shall be leaving London before then."

"A pity," said Shakespeare. "I am beholden to you, sir."

Then my uncle made what I thought was a mistake. He said: "Surely there are others to whom you are more beholden?"

I saw that the other was suddenly alarmed—he sat back and regarded Master Pyramus Feste very narrowly.

"What do you mean, sir?"

"That you are beholden to Master Francis Bacon, for example."

That brought results. Shakespeare jumped up quickly, and knocked over a tankard. He glared, bared his teeth in a silent snarl and then swept out. The other two rose also—as they left Burbage hissed at my uncle: "Sir, you are *unkind!*"

My uncle, not in the least upset, executed a small jig.

"You see! A hit, a very palpable hit! He was upset at once!"

He jigged a bit more. "A smooth talker that Shakespeare. But I'll expose him! I'll find Bacon now and ask him a few questions!"

"But what could be the reason for——"

"Plenty of reasons! Vanity, money or plain blackmail. Perhaps it's because Shakespeare is in the swim of things theatrical and Bacon isn't." He grabbed his cloak. "I'm off!"

"Where?"

"To find Master Bacon, alone. You don't mind if I go?"

"Doll," I called, "do you mind if my uncle leaves us?"

She twitched an eyebrow—she had very fine eyebrows.

"Faith, all London belongs to him."

I gathered that it was an old Elizabethan way of saying that the old boy could get the hell out of it.

He came back in the evening looking pretty sour. He sat in the chimney corner and glowered at the fire.

"Did you find him?"

"Yes. I went to his house, and his servant told me that he was walking in the smooth field."

"Where?"

"Smithfield. I got into conversation with him. I told him that I admired his *Advancement of Learning*."

My uncle seemed to be expecting me to say something to that, but it didn't register.

"Did he like to be complimented?"

"No," replied my uncle a shade savagely, "because he'd only just started making notes for the book!"

"You're slipping."

"He asked me if I dabbled in the Black Art!"

"Diplomacy," I observed, "is not your forte—what are you going to do now that you've upset 'em both?"

After a lot of chatter he got around to the idea of organising a little bribery and corruption. At first we tried to get into the "Globe" Theatre, but it seemed that Burbage had given orders that if a pestilential Old Gobbo of a man by the name of Pyramus Feste came nosing around, he was to be thrown out. So then we inveigled the doorman of the place into "The Glorious Harry" and started to ladle beer into the fellow. He had some take-away—it took ten stoups of the best before he'd start talking, and another two before his knees began to buckle. But uncle knew what he was doing. The man began to loosen up.

"Master Bacon and Master Shakespeare? Oh, they visit constantly, at nightfall mostly. They think it more discreet."

"Ha!" Uncle's eyes flashed. "For what purpose do they meet?"

The doorman took a swig that half-emptied his pot.

"It is to do with writing, that I know. Always it seems to be Bacon who pleads."

"Ah, it would be so!" He turned to me. "What can we do, I wonder? Time is so short."

That was true—the next morning the disguised time ball would be waiting for us and we dare not miss it.

"Why," rambled the doorman, "they are together now. He came to the theatre this even and I heard them agree to go to Master Will's lodgings and talk."

My uncle rattled a small bag of gold in front of the fellow's nose and winked at me.

"This is for you, if you can get me within earshot of them."

The man's eyes popped.

"I can guarantee it—I have a friend whose house is next door to where Shakespeare lives, and she and the wife who keeps the place are good friends."

"This is it!" He dived for the door dragging the other with him. "You stay here," he said to me. "Don't worry if I'm late!"

All that Elizabethan England saw—if there was anyone to see—was a coach waiting on the track of a windswept field with a man inside. The man was me and I was getting anxious. Uncle knew that we had to be there on time, but there was no sign of him—if he hadn't been proved right by now, then he'd have to make a second trip some other time.

I raised a flap in the crude upholstery of the coach interior and checked over the line of dials. There was about fifteen minutes left. Then, as I leaned out of the window, something in the pocket of my doublet crackled. It was the copy of uncle's psychoplan which Dingo Brown had given me before I left. I was about to unfold it when I heard a hail, and, looking up, I saw the figure of Uncle Pyropeles, buffeting along. I sighed thankfully and held the door open for him. He came up puffing and snorting, but made no attempt to get in.

"L-listen!" he chuffed. "This is vital!"

"Right!" I snapped. "Get in and calm down. There's not much time——"

"No, NO!" he almost squealed. "This is *terrible*! I—we must do something! I *shall* do something! I daren't go home like this! My reputaion will be ruined!"

I lunged in an attempt to grab him by the cloak and missed.

"Get *in*!" I barked. "Who do you think you are? I won't have you give history a twist!"

He skipped aside like an elderly gazelle.

"Oh, please!" he begged. "That's the point! It already has a twist!"

We had about eight minutes.

"Go on."

"Last night I heard Shakespeare and Bacon quarrelling. They accused each other of betraying a trust and both revealed that their information came from me!"

"I see," I said. "Shakespeare didn't want it known that Bacon was writing his plays——"

"NO!" wailed my uncle. "Quite the reverse!"

I must have looked completely foxed.

"You remember that I mentioned Bacon's *Advancement of Learning* to him? It so happened that at the time I asked he had just handed the rough notes to Shakespeare, to see what Will thought about them for writing up into a book."

"Then Shakespeare wrote Bacon?"

"Yes, but not any more. That's what worries me—their quarrel grew violent, and they drew swords and Bacon killed Shakespeare!" He went on. "I made my guide swear to silence and then I went in and helped Bacon dispose of the body."

"An accessory——" I began and started to edge out of the coach. I had to catch him.

"No, no! It had to be done. I had my reputation to consider!"

I still wasn't with him. Again I missed my grab and he dodged away.

Time Tours never left a customer behind, not until now. I heard the ready signal go and I hopped back just as the time ball whisked away.

I managed the arrival discreetly and I said nothing, not even when I saw the psychoplan of Pyropeles Q. Festipon, who, according to Dingo Brown, was suffering from a severe severe *epithumi-orthotic psychosis*, or, in plain language, an overwhelming desire to be right. I know that no one in the family will miss Uncle Pyropeles until Christmas comes round. Then, when they ask about him at this annual re-union, I shall have to tell them that he is back in Elizabethan England helping, *helping*, Francis Bacon to write the later plays of William Shakespeare.

# SILENT ENEMY

by WILLIAM F. BENTLEY

*THE PLANET WAS PERFECT, JUST WHAT THEY HAD BEEN  
LOOKING FOR, BUT THERE WAS SOMETHING THEY  
OVERLOOKED . . . IT WAS ALREADY OCCUPIED*

THEY HAD LANDED. BULLON SWITCHED EVERYTHING off and unfastened his safety belt. "Let's do this one quick," he grunted.

"Let's do it right," said his passenger quietly.

Bullon got off the pilot's couch. He stood up, yawned and stretched, slapped his muscular stomach. "Three months planet-hopping," he said. "And this finally looks like the one."

Deering did not reply. He sat down at the survey desk and let in the world outside. It came in through meters and glass tubes, on slides and graph paper, along needles and pointers and dials; and he began to make rapid notes.

Bullon took an apple from the food locker and ate it noisily, tearing the flesh with large yellow teeth. He leaned against the forward viewing port. "Look at that," he said admiringly. "Out there. Green grass and blue sky and big trees. Come on, Mastermind, pull your head out of that microscope and let's get outside."

Deering's slim shoulders were hunched over a tiny glowing screen. "Bullon," he said absently, "I realize, almost as much as you, that we are paid to be guinea pigs, and that the only true test of a planet's suitability for colonisation is the advance survey team's ability to remain alive on it—but please allow me to make the pretence of a purely scientific approach to the problem."



Bullon grinned at him. "Like I said," he grunted, deliberately accentuating his vulgarity. "Let's git artside."

Deering smiled.

They were fond of each other, these two, but both would have died rather than admit it. You had to be fond of your partner on a survey trip. For sometimes as long as a year you were alone together in a metal coffin, locked in against a hostile environment, and in those conditions there was no such thing as a static relationship. A vague liking grew into affection, and a half-realized antipathy rapidly became hatred. Deering admired Bullon's strength, his competence, his good humour; and Bullon regarded him with a mixture of awe and amusement.

Deering put down the clip board he'd been writing on and sat for a moment in thoughtful silence.

"Well," asked Bullon impatiently, "do we go for a walk?"

"Yes. Yes, I suppose so."

"Suits?"

"No, we shan't need them."

They went into the airlock and Deering went methodically through the procedure of closing the inner door before opening the outer, while Bullon rattled the back of his fingernails on the door and said: "Come on, come on, come on." When the door opened he clambered down the ladder like a schoolboy, and jumped the last few feet to the ground. He picked up a stone, ran with it stiff-legged, and bowled it, over-arm, against a tree trunk. Deering stood in the doorway and watched, smiling, then he looked up and out, around the horizon. But as far as he could see there was nothing to mar a scene that was like an amateurish painting of a country landscape. Nature is a poor artist, he thought. She covers the Earth with a vivid green and tries to match it against a deep blue sky. She hangs a yellow globe in the centre for lighting effect and crowds her canvas with far too much detail. She should take lessons.

"Hey!" yelled Bullon, from below. "Come on down here

and start guinea-pigging. What's the matter with you? Scared?"

"Yes," shouted Deering. "It's too good to be true."

He climbed down the ladder and joined Bullon, and together they walked a little distance from the ship, down into a small hollow. They were knee-deep in wild flowers and the sun's heat flowed over them like a benediction.

Bullon lay down on the grass. He put his hands behind his head and closed his eyes. "Home sweet home," he said. "Bring on the dancing girls."

Deering went down on one knee by his side. He wanted to relax. He wanted to sit in the sun and chew a blade of grass and not think about anything—but there was something wrong. He looked about him. At the grass beneath his feet, and the survey ship behind them.

"Bullon," he said sharply, almost hysterically, "this is the jackpot, eh? This is the good planet, eh? We sit here in the sun for a bit, then we go back and report to Earth Central. We get our bounty money and we both live happily ever after. Is that it, Bullon? Is that it, eh?"

Bullon sat up slowly and stared at him. "Yeah," he said. "That's it. Why not? Johnson and McNally did it on their first trip out, and the planet they discovered has been colonized for ten years now. Why not us?"

Deering grinned tightly, mirthlessly. "Why not? Well, listen. Just that. Sit still and don't move, and listen."

Bullon continued to stare at him and the seconds dragged by. Then his gaze shifted, became unfocused as his listening intensified. He got up on one knee "Hey!" he said softly.

"Quite so," said Deering. "Nothing. No sound at all. No buzzing, no twittering, no grunting or squealing or howling. No drumming of hoofbeats, no crashing in the undergrowth."

Bullon stood up and spread his feet wide, unconsciously adopting a defiant pose. "Well, so there's no noise, but I can hear you and I can hear the wind."

"There's no noise," said Deering, "because there's no movement. Look at this place. The finest possible environment for life as we know it. The surface of this planet should

be alive with a thousand diverse species, all crawling, hopping, flying, jumping. Think about that. A planet with no animals, no birds, and probably no fish either."

Bullon was silent for a moment, then he shrugged and grimaced. "So what the hell," he said. "So they have to ship in a few cows and sheep. There's plenty of grass for 'em."

"You haven't thought," cried Deering. "You haven't really thought. Listen. There's life here. Growing, dying, being born again. Following the rules for immortality, but only in a specialized and unrelated form, and that's breaking the rules. It's impossible that life should grow into the shape we call grass, without life in another form needing to eat that shape in order to remain alive. Do you understand? Trees are meant to be nested in, they are meant to be climbed by an anthropoidal shape, they are meant to provide escape from the carnivore."

They were standing facing each other now. Bullon was frowning, intent, his eyes fixed on Deering's face. Deering was gesticulating a little wildly, his voice just a little too loud.

"Don't you see," he went on. "We are animal life, and this planet is death to animal life. You and I could be dead men right now. We——" He stopped. His wandering gaze focused on something behind Bullon. He stared, then his body slumped. He made a curious gesture of resignation and turned away. "I'm sorry," he said tiredly. "I've made a fool of myself. I'm sorry."

Bullon looked back over his own shoulder. Twelve yards away, on a small hillock, sat a rabbit cleaning its whiskers. It wasn't a rabbit, of course, there were minor differences, but it had strong back legs, a small furry body and black, beady eyes. Bullon turned back to Deering and cocked his head on one side. "Go on," he said, "what were you saying?"

Deering exploded into a bellow of laughter that had a faint note of hysteria in it, and afterwards he looked at Bullon with genuine merriment and some affection.

"Oh, you're a hooligan," he said.

"Yeah," said Bullon. "I'm a hooligan. And what are you?"

Deering's merriment faded. He saw in an instant the wide difference between Bullon and himself. At the height of his tirade there had been an element of detachment in his emotion. His excitement had been the excitement of the scientist who has stumbled on a new truth, and part of his passion had been admiration for his own logic. But Bullon had begun to believe that logic, and believing it, had begun to accept Deering as omniscient. Bullon was one of those people who are incapable of introspection, and so he had that strange quality of being able to say exactly what he felt. He really wanted to know.

"I know," said Deering carefully, "that I am excitable and faintly neurotic. But if I weren't I wouldn't be here with you. We're a team, you and I. I see danger behind every leaf; you don't see any, anywhere. That's why we were put together. You're hard-headed and I'm imaginative. If you can convince me that everything is all right, then you can bet your life it really is. But if I can convince you there's danger, then there really is danger. That's putting it very baldly, but because we are what we are that is the way we divide every situation up, every situation, that is, that can so be divided."

Bullon nodded. "I think I already knew that. I'm just saying: Make sure. Don't come to me for help in nothing until you're sure. Make a fool of yourself, but don't make a fool of me or, so help me, I'll belt you over the ear with my gun butt."

"I'm sorry."

"Forget it. Let's take a walk up that hill, through that bunch of trees there and have a look around."

They started walking. Deering said: "It's a pity we can't survey the planet before we land."

"I've told you. I'm not going to waste fuel setting up observation orbits round every planet we come to. We approach the way we leave, backside on. If you don't like it you can get out and fly down."

"Yes, of course," said Deering hurriedly, deliberately

pursuing a course of exaggerated servility. "I meant no criticism, sir."

Bullon looked at him silently, and then they were in the wood and further conversation was impossible. The undergrowth was very dense and the business of forcing a way through took all their attention. When they were some way in, Deering stopped and wiped his forehead on his sleeve. Then he took out his revolver and fired twice into the upper branches of the nearest tree. Bullon had been ploughing on ahead. When the first shot rang out he spun round, his own gun in his hand. Deering smiled amiably at him and put his gun away.

"Just what the hell's the idea!" said Bullon grimly. "Have you gone nuts? What are you shooting at?"

"Nothing," said Deering. "Not a single, living thing."

"Then why do it?"

"I wanted to be sure, quite sure, that there was nothing to shoot at."

Bullon glared at him a little longer, then he grunted and holstered his revolver.

"I ought to tie you up somewhere," he growled. "You're not safe to be let loose. Follow me, you nut. I'm going to prove that this planet's safe, even if it kills you."

"Yes, sir. Very good, sir."

The scrub and trees thinned abruptly and they came out at the foot of a grassy incline. There might have been differences in their intellectual make-up, but, when they stepped out of the wood and saw the fencing posts, they reacted as one man. They stood still for a second, swore violently and then raced, scrambling and gasping, to the top of the little hill.

Below them the plain undulated away to distant hills. A stream that was almost a river ambled gently along, and, by the side of the stream, there was a village.

"Agriculture," said Deering flatly. "Primary community. Biped."

"And bang goes the bounty," said Bullon.

The buildings were Tudor in conception. Low, timber-

framed houses, most of them single storied, and some attempt at site planning. There was a main street, a central square and evidence of a community spirit in the stone lamp standards placed here and there.

But it was deserted.

A few rabbits hopped about or gazed reflectively into the distance, but otherwise there was no movement anywhere. They went down into the village and walked on pavements that were broken and thrust upwards by fungus. They walked into rooms that smelled of rotting vegetation and were hung heavy with silence. There was furniture, built to suit a comfort-loving race of rather small people, which fell apart when touched. The village was desolate and decaying, and rampant, triumphant vegetation grew on it, and under it and all around.

They stood now in the little square, looking round at the simple buildings.

"I don't like it," said Bullon. "It gives me the crawling jeebies. I get the feeling that there's somebody behind me. Somebody who ducks out of sight when I turn round." He caressed his gun butt with the palm of his hand. "Well, Mastermind, what does all this tell you?"

"It tells me a lot," said Deering. "There's a thousand years of peace and security here. A temperate climate, an agrarian society, an unenterprising culture. An effete, static and decadent civilization."

"You're just making a lot of chatter," said Bullon, his body tense, his eyes darting here and there. "Where are the people? Why did they leave? What happened here?"

Deering hesitated. "I don't know," he said with a gesture of futility. "To you this empty village is evidence of danger. Evidence that you can't ignore. But to me it's just another part of the jig-saw. I still can't see a picture. Look, you stay here. I'll take a look round that king's palace—town hall place—there. There might be something."

"O.K."

It was a building slightly larger than the rest and obviously built for ceremonial purposes. Deering walked up the steps

and through the wide portico. Inside there was a large hall, empty, and at the end a locked door. Deering kicked this open, a simple feat, for it was badly warped. He put a foot inside the room, and, seeing what it contained and realising immediately the implications, almost cried out. He felt as though he had suffered a violent blow on the face, so great was the shock. He backed away, all the way down the hall. He walked backwards, because a walk forward would have become a panic-stricken flight. He came out into the sunlight, looked frantically round for Bullon and saw him sitting on a low wall desultorily trying to attract a rabbit. The rabbit faced him, unafraid, upright on its back legs, its nose twitching with curiosity. Deering half drew his gun and opened his mouth to shout a warning, and stopped himself. He fought against the memory of one wrong conclusion and made the hardest decision of his life. He composed his features and waited.

"Come on, den," said Bullon to the rabbit. "Atsa nice little pootchi." He got off the wall and sidled towards it, making idiotic come hither noises. "Cootchi—cootchi—cootchi! Here, pussy—pussy." The rabbit trembled as he drew near, but allowed itself to be picked up and stroked. It stared wildly up into Bullon's face and its nose twitched violently. It had never smelled *anything* like this before.

Bullon held it on his left forearm and reached in his breast pocket for some chocolate. He held it under the rabbit's nose, and the rabbit sniffed it, licked it doubtfully, and then began to nibble it greedily. "Look," said Bullon delightedly as he saw Deering. "He likes chocolate. Ain't he cute? I think I'll call him Clarence."

The rabbit finished the chocolate, licked every last trace of it from between Bullon's fingers, and Deering nodded as though he had personally accomplished something.

"Put it down," he said quietly.

"Eh?" Bullon looked at him, startled, and something in Deering's expression made him lower the rabbit to the ground. The rabbit hopped a few paces away and stood up

on its back legs to clean its whiskers. Deering's first bullet smashed through the centre of its body and bowled it over. The second and third bullets reduced it to a pathetic bundle of fur and blood. Then Deering pointed the gun at Bullon's stomach and waited, his thin face expressionless.

Bullon frowned terribly, furiously. The apparently wanton destruction of the little animal had shocked him profoundly. His hands clenched and only the gun pointed at him kept him where he was.

"You louse!" he shouted. "You louse! What's the matter with you? Have you got to kill something? Just because you've got a gun!"

Deering waited. He fixed his eyes on Bullon's face until the outburst had burnt itself out, then he looked down at Bullon's hand. Bullon realized at once. He lifted his hand, held it in front of his face, stared closely at the fingers that the rabbit had licked.

"You know something," he said quietly to Deering. "What do you know?"

Deering holstered his gun. "Back there," he said, jerking his head. "In that place. There's a room with the door locked on the inside. The last few survivors buried their dead and hid in that room, and took their silent enemy in with them."

Bullon gazed at him levelly. "What now," he asked.

"Back to the ship. Quick."

An hour later they were circling the planet in an observation orbit. Bullon lay with his arm encased up to the shoulder in a plastic case, while a machine pumped the blood from his hand and forearm, and replaced it with a clear liquid. On the hand itself blisters had begun to form, and Deering was attending to these through the plastic, which stretched over his hands to form skin-tight gloves.

"When I get out of this," said Bullon weakly, "I'm going to knock your head clean off. You let me do it. You stood there and let me feed it chocolate. You rat."

"I couldn't be sure," said Deering. "I couldn't be sure of anything, except, of course, the fact that until we'd solved



the problem we couldn't leave the planet. If we'd have gone back to Earth Central without a complete report on this place they would have blown us out of the sky. I was pretty certain that if it was bacteria, then our techniques could combat it. Besides, Earth Central will want to see a culture, and human blood makes the best medium."

"You rat," said Bullon again.

"We both want the bounty money," said Deering. "You can pilot the ship, but you can't handle these instruments. The alternatives were obvious and the choice a simple one."

He disconnected the bottle which hung outside the case and sealed it. He held it up to the light and the red glow fell across his face.

"There it is," he said. "The nearest approach to an intelligent bacteria that the universe will ever see. It's not the first to come to terms with a rodent—remember the black rat and the Bubonic plague. But this fellow came to terms with an already poisonous rodent. 'Give me a home,' he said, 'and I will give you the planet. I will evolve into shapes that will kill everything that moves, and give you peace, security and freedom for your species for ever.'"

"Yeah, but listen. On Earth there are only rabbits in certain countries. There weren't any in Australia until they were taken there."

Deering sighed. "It wasn't me who refused to go into an observation orbit. I could have solved the problem ages ago if I'd have had those photographs. It was the oceans that stopped the rabbit from spreading into Australia. On this planet all the water is in land-locked basins. So a species that is germane to one country is germane to the whole planet. A plague that is germane to one area is germane to the whole world."

"So, then why ain't the planet knee-deep in rabbits?"

"I've no doubt it was—once. The grass lived on the planet, the rabbit lived on the grass, and the bacteria lived on the rabbit. A perfect relationship—and Nature abhors perfection. The individual must be subjected to starvation, attacks by enemies, tortures and death, in order that the species may

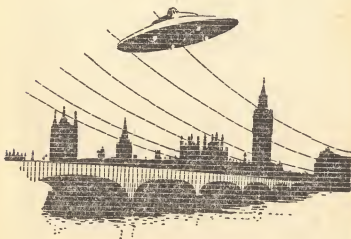
survive. Nature says go back or go on, but don't stand still. As man is evolving, always reaching out frantically into a constantly expanding universe, so, somewhere in that static relationship, a secondary evolution had begun. One of the links in the chain had begun to grow weaker, or stronger."

"Yeah? Well, bully for it. Now what about my arm?"

"Keep it under the ultra-violet for about another half hour. Then we'll break out of this orbit and head for Earth Central and that bounty money. Your arm will be that dead-white colour for about a week. I'm sorry, but there it is. We must all make sacrifices to advance the frontiers of knowledge. I think," he said, patting the bottle lovingly, "that I will call you Symbiosi Bullonicus."

"You do and I'll wring your neck. And, talking about sacrifices, what sacrifices did you make? I only want to know. I'm stupid, you see. Just tell me, that's all . . ."

They argued about it all the way back.



## *Book Reviews*

**SATELLITE IN SPACE** by Professor A. M. Low. Herbert Jenkins Ltd., 10s. 6d., 192 pp.

The difficulty with many recent science fiction novels is to determine whether they are intended for juveniles or not, and this posthumous novel by one of the better-known advocates of science fiction is a case in point. A couple of love affairs seem to preclude a strictly juvenile definition, but at the same time it is far from adult. Characterization is poor, detail is omitted and the lack is made up by some of the most intensely concentrated slam-bang action to be found between hard covers.

Richard Tyrell, the hero, Head of Aeroframe Design for Metro-Combine, bewails the fact that the concept of space flight has been relegated to the comic strips and is immediately proved wrong by the announcement that his firm is to build a space station six hundred miles above the Earth. The ships are built, the men trained, a case of sabotage discovered and the inevitable warning that "Men are not meant to fly into the unknown seas of space!" uttered by Marion Orchard, daughter of one of the directors and sister to Susan, Richard's fiancée, all within the first three chapters.

The satellite is established, the crew begin to suffer from an unknown illness and a second space station arrives, crewed by coloured men and commanded by a German with Hitler-ideas of making himself the Emperor of Space. This unpleasant type accuses Tyrell of stealing his oxygen and dies just as he is about to wreak vengeance. Further complications arise when a member of the original crew also gets delusions of grandeur. His hash settled, Tyrell

discovers that his own oxygen is vanishing and finds that it is being stolen by a race of aliens who have lived in space since their world exploded cons ago. The remains of their world form the Asteroid Belt. Tyrell captures the aliens, takes them down to Earth where Marion Orchard promptly falls in love with one of them and they go to Russia. The aliens are fifty per cent. mechanical and are upset at adverse publicity so they, too, travel East and take their scientific knowledge with them.

With the world facing the prospect of another war, Tyrell, just to show who is boss, builds a solar mirror and melts Mount Everest. Shortly afterwards the world is threatened with destruction by a giant asteroid. Tyrell destroys it by means of the atomic bombs in both his and the German's satellite.

**THE TREMBLING TOWER** by Claude Yelnick. Museum Press Ltd., 10s. 6d., 160 pp.

This book has been translated from the French, which possibly accounts for the slightly unfamiliar style of story telling. This, while it does not damn the book, doesn't do much to help the almost non-existent plot.

Two men are in a lighthouse which is suddenly shaken by a tremendous vibration. This vibration mounts the spectrum turning from sound into light, from light into radio signals. While the vibration is building a ship is wrecked nearby and the lone survivor, a Norwegian, Olaf Petersen, is rescued and revived. He determines to solve the mystery of the vibration and finds that it is a form of communication used by "The Others." His means of communicating with them is to make a lead box, enclose his luminous wrist watch within it and, by flipping the lid, emit bursts of radiation. The Others respond by sending globes of matter into the lighthouse.

The story is told in an extended diary form by the "Captain," a man who has his own secret sorrow. This sorrow is revealed as his having lost the girl he loved in peculiar circumstances when young. She went sailing during a storm and when she returned vanished before his eyes. He decides that she also was caught in one of the experiments

conducted by "The Others" and is proven correct when he himself vanishes from the normal world together with Petersen. The sole remaining man is found dead by an investigating team, who also find the Captain's diary and personal record.

Fantasy lovers may find this book has some appeal.

**THE DEATH OF GRASS** by John Christopher. Michael Joseph Ltd., 10s. 6d., 231 pp.

One of the tests to apply to any science fiction novel is whether it answers the definition of "What would happen if——?" In this novel, chosen as a Book of the Month by the *Daily Mail*, the author has done just that. He has taken a simple theme; what would happen, in England, if grass should be attacked by a world-wide killing virus? His logical extrapolation, because it is logical, makes this one of the finest novels of recent times.

Grass, and that includes all grain, is following rice in that it is dying from the attacks of a virus which seems impossible to control. John Cunstance, an engineer, lives with his wife, Anne, in London; their daughter and son are at school. Roger, a Civil Servant and a friend of the family, warns John that a crisis is imminent and that safety is only to be found outside the city. The two families make arrangements to make a journey to Westmorland where David, John's brother, has a secluded farm which he has already planted with potatoes in view of the coming famine of grain.

The story is the tale of their journey, what led up to it and what happens during it. It is deceptive in its apparent slowness, action and drama come naturally and without strain, and the mounting horror is all the more effective because of that. There is one concession the reader must make if he is to enjoy the book to the full. For the purposes of story-telling the author has accelerated the logical sequence of events so that the three-hundred-mile journey becomes a sleigh-ride from normalcy to what could happen should the basic premise become reality.

This, coupled with a host of real characters, makes this book fully deserving of the *Daily Mail* selection.

## NON-FICTION

**THE BURIED PYRAMID** by M. Zakaria Goneim. Messrs. Longmans, Green & Co. Ltd., 18s., 155 pp., 48 photographs, five line drawings.

The inclusion of such a book as this needs no apology. Every reader of science fiction is, in a way, dual-minded; he is as interested in the past as he is in the future, and accounts of archæology are some of the most exciting detective stories to be found.

Here is the true account of a superb work of detection written by the man who first discovered the buried pyramid and who exposed it to the light of day. The story is not yet complete, nor will it be for many years, for the amount of excavation yet to be done is immense, but already it is rich with drama, hope and disappointment. This pyramid is one of the first to have been built, almost five thousand years ago. The author, a noted authority on the subject, gives a wealth of detail on the early pyramid builders, how they built them, why, and the precautions they took to safeguard the great tombs.

A fascinating book which no one interested in the subject can afford to miss.

**CALDER HALL** by Kenneth Jay. Methuen & Co. Ltd., 5s. 88 pp. 19 photographs.

Want to build an atomic power station? Then this book will tell you how to do it. And you will know that it isn't fiction you'll be reading, but the even more startling fact; for this is the account of the first nuclear power station in the world to generate electricity on an industrial scale.

Written with the full authority of the Atomic Energy Research Establishment, this book described the station as it was on the first day of operation; the problems that had to be overcome before it could be built and the precautions which have to be taken in the daily running of the plant. It also tells of the fuel a reactor uses, the way the fuel is prepared and just what happens inside a reactor.

It is a book no one can afford to miss—not if they want to stay up-to-date.

# Discussions

## COMPLAINT

This is the first time I've ever written to a magazine and I'm only writing because I feel strongly about something—namely, the lead story in No. 73. What on earth is a cops-and-robbers (and newshounds) story doing in a *science fiction* magazine? The only science I could find was an attempt to create a human being in a laboratory tank, and even that didn't work!

Apart from that, though, the magazine is improving steadily since its recent switch to genuine fiction. May we never return to those dreary tomes of solid factual matter with a little fiction slipped in apologetically here and there!

The covers, too, are better, the one on No. 73 in particular. No one who has not had long experience of bookstalls and second-hand bookshops can realize the immense importance of the cover. I have watched people take one look at a cover showing some zany metal monster and shy away as if they had been bitten. So, please, keep *your* covers reasonably adult like the last ones.

Through much science fiction reading I have picked up, among other things, two of the more easily understandable implications of Einstein's Relativity Theory. Firstly, that mass increases with speed, so that at the speed of light an object becomes

too "heavy" to go any faster; and secondly, that light, being affected by gravity, must have mass of some sort. Combining these two it becomes apparent that light must have tremendous, if not infinite mass! Is this so, or have I got the story wrong?

Robert Yarwood,  
"Braemar," North Brunton,  
Gosforth, Newcastle-on-Tyne, 3.

*Remember that the Theory of Relativity is only a theory, but a part of it is, as you say, that the higher the velocity of an object the greater the mass. A spaceship, for example, or other piece of matter would, at the speed of light, have infinite mass. This, apparently, precludes anything ever travelling faster than light, for to move an object having infinite mass would require infinite force—and then if it moved the mass wouldn't be infinite, anyway.*

*But light, though it travels at the apparent maximum velocity and has mass, is not matter, but energy and does not fit into the part of the theory appertaining to the behaviour of matter at high velocities.*

## INTELLIGENCE

Although only an occasional reader of *Authentic*, I would like to point out that the Editorial of No. 73 shows some faulty reasoning. The theme developed may be summarized thus: in our society wealth is all-important; even philosophers, while agreeing that

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wealth is no index to intellect, accept it if offered; an intelligent man will not starve; therefore we should expect an intelligent man to apply himself to the acquisition of money, to free himself from insecurity. Not unnaturally, you now come up against a stumbling block; why do geniuses starve?

In point of fact this paradox is not so absolute as it would appear. You are arguing from false premises; you state that "An intelligent man will not starve; if he does, then he is not intelligent." Now, let us imagine an intelligent man shipwrecked, unable to furnish himself with food, and drifting in a boat with no means of steering or propulsion. Before the boat can make land he has died of hunger. Is he, therefore, unintelligent?

What you have done is to confuse two uses of the word "will"; one, the simple auxiliary of future tense, the other meaning "desire." If we are to read it as a simple future—"will not starve"—then the example above and the incontestable fact that geniuses do starve prove the whole statement wrong. If we read "will not desire to starve," the rest is a *non sequiter*—"An intelligent man will not desire to starve; if he does starve, he is not an intelligent man."

Next, this idea of the intelligent man who, aware of the desirability of wealth, "would bend his intelligence to the trifling process of obtaining it." The assumption is false, i.e., the assumption that, because he is intelligent the amassal of wealth is easy. As you pointed out earlier in the Editorial, a man may be brilliant in one field yet helpless

in others. The genius starves because he is helpless in practical business matters. It is useless to put the case of an atomic scientist unable to snare food or build a fire, and then to ask: "Surely his intelligence should show him how it should be done?" As well expect him to edit *Authentic* as to become a practical businessman on the strength of reasoning powers alone—business matters demand a knowledge of humanity built up from study as long and patient as that devoted to atomic physics.

As to tight purse strings and projects shelved for want of funds, you have answered this yourself by the remark that money is no index to intelligence.

As a side issue I should like to contest the implication in your opening paragraphs that there is a mean or constant of intelligence to which all men average out. This idea, which reeks of the "idealist" philosophy of mediæval times, is easily disproved; it is obvious to anyone looking around him that, besides men of fair, all-round intelligence and of brilliance in some fields there are men of all-round moronic intelligence, and men—such as Da Vinci—of all-round brilliance. If intelligence were, indeed, a constant, would the I.Q. tests show the results that they do?

Anthony V. Hall,  
8 Ormond Road,  
Gt. Yarmouth, Norfolk.

*I did not say that money is no index to intelligence; I said that possession of money is a little more than proof of intelligence; it is proof of a high survival factor. And I simply refuse to believe that*

Continued on page 123